

Management Systems International

Mid-Term Evaluation Report:
Environmental Policy Technology Project (EPT)

110-0003

September 18, 1995

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ACRONYMS

AED	Academy for Educational Development
AQM	Air Quality Management
CARD	Center for Agricultural and Rural Development, Iowa State University
CETI	Center for Environmental Training and Information
CFR	Code of Federal Regulations
CIP	Commodity Import Program
CWP	USAID/EPA Country Work Plan
EPA	U.S. Environmental Protection Agency
EPT	Environmental Policy and Technology Project
FY	Fiscal Year
GIS	Geographic Information System
HIID	Harvard Institute for International Development
IAA	Inter-Agency Agreement
IBRD	International Bank for Reconstruction and Development
IESC	International Executive Service Corps
ISC	Institute for Sustainable Communities
LC/NC	Low Cost/No Cost
MEPNR	Ministry of Environmental Protection and Natural Resources
MPCA	Minnesota Pollution Control Agency
MSI	Management Systems International
MSUGC	Moscow State University for Geodesy and Cartography
NET	Newly Independent States Education and Training Project
NIS	Newly Independent States
NGO	Non-Governmental Organization
OAQPS	Office of Air Quality Planning and Standards, EPA
OGWDW	Office of Groundwater and Drinking Water, EPA
OIA	Office of International Activities, EPA
OW	Office of Water, EPA
O&M	Operations and Maintenance
PASA	Participating Agency Services Agreement
PSC	Priority Setting Committee, Nizhnii Tagil
PVO	Private Voluntary Organization
RAMP	Russian Air Management Program
RTP	Research Triangle Park, North Carolina
SAIC	Science Applications International Corporation
USAID	U.S. Agency for International Development
USG	U.S. Government
USGS	U.S. Geological Survey
USIA	U.S. Information Agency
VEE	Visible Emissions Evaluation
VESA	Volgograd Environmental Services Administration
WHO	World Health Organization

PROJECT IDENTIFICATION SHEET

1. Country: Russia
2. Project Title: Environmental Policy and Technology Project for the New Independent States - EPA Portion for Russia
3. Project Number: 110-0003
4. Project Dates:
 - a. First USAID/EPA Obligation: May 7, 1993
 - b. Final Obligation Date: FY 1996
 - c. Most recent Project Assistance Completion Date (PACD): September 30, 1997
5. Project Funding:
 - a. USAID Bilateral Funding (FY 93-95): \$11.5 million
 - b. Other Major Donors: NA
 - c. Host Country Contributions: In-kind
6. Mode of Implementation: Inter-Agency Agreements and Participating Agency Services Agreements between USAID and EPA, Contracts and Cooperative Agreements between EPA and others
7. Project Designers: USAID/Washington, USAID/Moscow and EPA
8. Responsible Mission Officials:
 - a. Mission Director: James Norris
 - b. Project Officer: Dr. Kevin Rushing
9. Previous Evaluation(s): None

EXECUTIVE SUMMARY

The Environmental Policy and Technology (EPT) Project was authorized in Fiscal Year (FY) 1993 at a time when great political and economic changes were occurring in the former Soviet Union and in parts of the former Eastern Europe. Therefore, the primary motivation of the U.S. Government (USG) was as much, if not more so, political as it was technical in offering to help Russia in addressing some of its key problems during this difficult period of tumultuous change. Certainly one of the important sectors to assist was the environment, which had been abused for many years under previous systems, with the result that Russia had some of the worst water and air pollution problems of any nation in the world, along with the resulting health hazards. Within this scenario the USG appropriated special funding for the U.S. Agency for International Development (USAID) to assist Russia in selected areas. Because the U.S. Environmental Protection Agency (EPA) had prior contacts with many former Soviet environmentalists, EPA was given a leading role in the EPT project. However, due to the overriding political nature of the program and the need to act quickly for foreign policy reasons, there was not sufficient time to plan carefully the design and implementation of this overall project, including EPA's portion. This led to management problems as USAID and EPA rushed to get some activities underway quickly.

Despite these constraints, a number of worthwhile activities started, particularly in the regions, which have begun to yield results already or will do so in the foreseeable future. Using the same criteria as in the original project authorization documents, as up-dated, some notable, positive indications of results include solid preparations for air monitoring systems in Volgograd; the establishment of a training institute in Ekaterinburg with the assistance of a U.S. private voluntary organization (PVO); public awareness building activities via a local non-governmental organization (NGO) in Nizhnii Tagil; central government approval of a priority environmental program and budget also in Nizhnii Tagil; legal research and the development of local prototypes in Volgograd to assist in the drafting of improved environmental laws and policies; and excellent training programs in the U.S. and in Russia, some funded under this project and others through other USAID funding.

Other project components have not proceeded as successfully, however, based on the same set of project criteria. For example, certain project activities in the Moscow water district took a long time to get underway as budgets were slowly worked out and numerous EPA experts or contractors visited Russia several times with seemingly limited tangible results. The more diagnostic approach and reportedly non-collaborative style of some activities in Nizhnii Tagil and the Moscow region frustrated Russian counterparts who felt that they were not being given enough credit for their own expertise and who were impatient with the delays in gaining specific U.S. recommendations in a useable form or access to the much sought after U.S. technology. In focusing on technical issues, the EPA regional sub-projects in the Moscow area and Nizhnii Tagil largely ignored economic factors, especially the implications of a transition toward a market economy. Commodities, though often financed from another USAID program, did not always arrive when needed, potentially impeding the attainment of project objectives in Volgograd. There has also been minimal linking of components of this EPA project internally and with other complementary activities in the USAID or other USG agencies' portfolio in Russia. Finally, limited results are evident in developing new private sector opportunities, such as environmental services, as well as potential joint ventures involving Russian enterprises and U.S. counterparts.

A serious deficiency in this project appears to be design flaws and the absence of clear and comprehensive management direction by both USAID and EPA. Because of the political atmosphere in which this project was hurriedly initiated, many short-cuts had to be taken by both agencies in the design and early implementation of activities which now appear to be adversely affecting the project's ability to demonstrate verifiable impact. Lengthy discussions between USAID and EPA about relative roles, procedures and workplans have taken inordinate amounts of staff time. Since the funding for this assistance project comes from the appropriations of USAID, which then obligates the funds, USAID should be and is, in fact, both legally and managerially responsible for its ultimate use. At least initially EPA seemed somewhat reluctant to accept USAID's leadership role and, therefore, its own implementing position in this technical assistance project and was not able to respond to all of the related needs of the agency paying the bills and managerially responsible. Internally, both agencies could have organized themselves better, with USAID delegating the project authorities sooner to its now well qualified field mission for better on-site management, and EPA consolidating the currently scattered project tasks in fewer offices under the overall management direction of its Office of International Activities (OIA). EPA also should seriously consider assigning a project coordinator to Moscow as early as possible this fiscal year (1995) to facilitate its communications with USAID and within its own agency. Finally, USAID should consider taking the lead in coordinating the activities of this project with all other donors in order to maximize the efficient use of resources.

In sum, the evaluation team believes that the EPA portion of the overall EPT project represents a priority allocation of USAID funds, consistent with overall agency goals and objectives. There is certainly no denying the gravity of the environmental problems evident in Russia as well as the growing genuine Russian interest in addressing many of them. The technical objectives pursued by EPA appear generally to make good sense in addressing some of the critical air and water quality problems which threaten the health of the Russian people. However, the EPA project's effectiveness has often been reduced because these earlier design deficiencies were not quickly overcome and because the methodologies used sometimes did not appear to fit well with the Russian situation. For example, in this latter regard, a closer collaboration between the U.S. experts and their Russian counterparts would be very helpful in the form of more integrated teams, instead of the more common pattern now used of largely dividing the tasks, some of which are carried out separately by the Americans and the others by the Russians. One can certainly detect the beginnings of some positive results in selected sub-project activities in Volgograd and Nizhnii Tagil. There are, unfortunately, fewer verifiable results of EPA's efforts so far in the Moscow sub-project, which started later than the others. This more limited measurable impact affects the entire project and is partly due to design flaws, late budgetary allocations and start-ups, the more diagnostic course often taken by EPA versus the more results oriented approach preferred by USAID and the Russians, the slowness with which so many activities have proceeded, and management difficulties as USAID and EPA grappled with the implementation of this large, complex and not optimally structured project. Of concern also is the work and cost efficiency of the large numbers of U.S. experts who make numerous visits to sub-project sites. At this mid-way point in the funding for this project, there is limited evidence of the sustainability and replicability of EPA sub-project activities, nor is there a sufficient effort underway leading to this, including a clear strategy for the needed institution building. USAID, in consultation with EPA, should consider weighing this fact carefully in its future funding decisions. Finally, based on the experience to date, both USAID and EPA should be able to solve their management problems and proceed more expeditiously with their Russian collaborators in achieving more specific targets

during the second part of this project.

1. EVALUATION OBJECTIVES AND CRITERIA

The objective of this evaluation is to examine the effectiveness of the USAID-funded activities administered by the U.S. Environmental Protection Agency (EPA) in Russia under the Environmental Policy and Technology (EPT) Project (110-0003). While this mid-term assessment will take into account the broader environmental conditions and other projects funded by USAID in Russia, it will focus specifically on EPA's management and the impact to-date of EPA activities in the three regional sub-projects, which EPA is now implementing, as well as in the cross-cutting components outlined in the design of the project. The evaluation team will present its findings and conclusions without recommending detailed funding decisions. This is considered the unique prerogative of USAID, in consultation with EPA, and subject to other external influences, such as Congressional and U.S. executive branch budget cuts. While indicating what appears to be working well and what is not, the team will also not be engaging in any redesign effort; that is simply beyond the scope of this particular contract activity. The criteria used in this review are basically those which are contained in the project's original design, as stated in the USAID Project Memorandum of February 2, 1993, and which have not been changed in any subsequent amendments to this project authorization. Copies of this criteria were shared with both USAID and EPA at the outset of this evaluation. In addition, further concerns (e.g., sustainability) were emphasized in the evaluation's scope of work and the project's workplan. Both of the latter documents were negotiated and agreed to by USAID and EPA. More details about this management review can be found in the contractor's statement of work (Annex C) and the list of evaluation criteria (Annex B).

2. METHODOLOGY AND APPROACH

The methodology used in this evaluation is consistent with the terms of the scope of work agreed to by USAID and MSI. A three-person team was recruited, composed of a team leader and management/evaluation specialist, Dennis M. Chandler; a water resources and environmental engineer, Dr. Andrei Filotti; and an air quality expert, Ms. Jacqueline Levister. The team individually and jointly possesses numerous years of experience working with USAID, EPA, international agencies and the private sector both overseas and in the U.S. This evaluation team first assembled in Washington in order to talk to as many USAID and EPA officials as were available to the team, review all documentation provided by EPA and USAID related to the project activities in Russia, and plan the steps to be taken in this management assessment. The team then proceeded to Russia for three weeks in order to interview USAID and EPA officials in country, U.S. Embassy representatives, Russian counterparts, World Bank staff, private organizations, and others about the operations of EPA in this project. Visits were made to selected activity sites in the three sub-project regions (Moscow, Volgograd, and Nizhnii Tagil/Ekaterinburg) to see first-hand many project operations on the ground and to verify planned results. Finally, before leaving Russia the team prepared an initial draft report, which it submitted to USAID/Moscow and which findings it summarized in a two-hour meeting there. Upon returning directly to Washington, the team followed a similar approach by delivering a revised draft report to the headquarters of EPA and USAID and then presented its findings in a meeting attended by representatives of both agencies. USAID and EPA were asked to submit to MSI within the prescribed time period their written comments about the draft report. In the process, additional documents were supplied and meetings arranged, particularly by EPA, in order to provide further data on this project. All of this information was subsequently reviewed and carefully considered in the completion of as fair and

accurate a final report as was possible within the limited time period agreed to.

3. PROJECT BACKGROUND

The Environmental Policy and Technology Project (EPT) was initiated during the period when the United States and other donors were rushing to support the evolving situation in the former Soviet Union as it began to emerge from some 75 years of communist political and economic policies. The U.S. and others sought to encourage the progressive movement towards reform in numerous areas and to assist those who wished to introduce more democratic decision making and free market approaches. Special funds were appropriated by the U.S. Congress in order to provide such aid in as accelerated a manner as possible. Because of this overriding political rationale, the Department of State was placed in a more prominent leadership role for many aspects of these assistance activities than is normally the case in the management of U.S. foreign aid programs.

While it was widely accepted that the environmental sector in the Newly Independent States (NIS) was in dire straits, little was known in detail about the exact nature of the problems and certainly much less about any possible solutions. The U.S. Environmental Protection Agency (EPA) had a twenty-year history of contacts with Soviet counterparts in the form of various technical exchanges. This fact, along with the political imperative to get some activities underway rapidly, caused the U.S. Agency for International Development (USAID) to use its special authorities provided by Congress to move quickly to commit funds to respond to foreign policy needs. This urgency did not allow for the normal management preparations undertaken for economic assistance projects. Accordingly, the project that was authorized in Fiscal Year (FY) 1993 provided a general overview of the needs and approaches, but not the analysis, design or specific objectives usually required. Subsequent amendments served more to extend the project in terms of money and geographic focus, without changing substantively the purposes of the project or greatly adding to clarity of the design. The actual detailed design became the workplan which was laboriously worked on for such a long time between USAID and EPA and was finally agreed to in May, 1995. In the meantime, USAID did not initially have the requisite staff in the field to manage such assistance and it was still experimenting with Washington-based management for the new programs in Russia and Eastern Europe. Finally, Department of State pressure to limit USAID presence in the NIS, plus the ready willingness of EPA to take a very active part in this project, led to the start-up of activities in which EPA played a major leadership role, but which did not involve the typical management oversight by USAID project officers and technical experts. Other components of the larger EPT project were scheduled to be implemented by means of USAID contracts with U.S. private firms and institutions.

EPA organized its initiatives under the coordination of its Office of International Activities (OIA). Because of the size and scope of the activities envisioned in Russia and because EPA already had many other competing demands on its staff, it decided to follow its normal procedures and draw upon its technical experts in the numerous EPA offices across the U.S. to handle individual parts of EPA's portion of the overall EPT project. Early project preparations were made via several visits to the NIS, including some with USAID and the World Bank. It had been initially planned that this EPT project would be linked to a larger multi-donor program, but the World Bank subsequently changed its mind and this USAID-funded project therefore began separately.

Against this setting, project activities began at both the central government level and in the regions. Numerous delegations including EPA experts visited selected sites in Russia, where the project was to operate, in order to diagnose situations and to prepare sub-project and activity plans. While many Russian technicians were eager to gain access to U.S. technology, work was made difficult because of the incomplete U.S. understanding of actual conditions in Russia, as well as, the Russian unfamiliarity with and even some suspicion of U.S. practices. Russia was experiencing continuing political and economic instability during this period which often exacerbated the problems.

4. EVALUATION FINDINGS AND CONCLUSIONS

The EPT project was authorized in February, 1993 to address specific cross-cutting objectives affecting environmental policy, institutional development, technological cooperation, training and awareness building in Russia. While there were several amendments to this USAID authorization, their purposes were to add funding and additional geographic regions without changing the basic purposes of this project. The EPA part of the project has been largely viewed by both USAID and EPA as three distinct regional sub-projects and has been implemented accordingly, without formally amending the original project authorization to reflect activities. The project workplan that was finally agreed upon between the two agencies in May, 1995 reflects this de facto adjustment. Therefore, both USAID and EPA have requested that MSI report its findings organized more along the lines of what has evolved in this project's actual implementation rather than according to the original project design. MSI has complied with this request by presenting the evaluation team's conclusions first by sub-project site and then by addressing the broader, cross-cutting components of the EPA project. More specific sub-project site descriptions and details are included in Annex A.

A. Volgograd - Russian Air Management Program (RAMP)

The Russian Air Management Program (RAMP) is a pilot sub-project in Volgograd intended to evaluate and implement improvements to the air quality management (AQM) system.

This Volgograd/RAMP sub-project has begun to show some initial results and to lay the groundwork for more. Visible Emissions Evaluations (VEE) training and usage, newly proposed "clean air" legislation and the more active role of Russian institutes are some examples of environmental institution building efforts undertaken during the Volgograd sub-project's implementation. This sub-project has proceeded with close cooperation among EPA and EPA contractors, the Volgograd Environmental Services Administration (VESA), and the government structure. Accomplishing slated activities has required forming productive working relationships with local, oblast and federal environmental representatives, for effecting change. The atmosphere of cooperation has proven successful. On the implementation side, vital working relationships have been evident in the Russian enthusiasm for new methods as these were incorporated into existing practices. Such on-the-job relationships demonstrate that experience and technique are transferred.

Project implementation in AQM in Volgograd enjoys support from all levels of the Russian partnership. Use of VEE methods have unofficially been incorporated into the monitoring mode of Volgograd inspectors who have taken the course. Inspectors report that the VEE method is both time and resource saving due to the reduced requirement for laboratory test results. The Ministry of Environmental Protection and Natural Resources (MEPNR) plans to use the U.S. Code of Federal Regulations (CFR) language authorizing usage of VEE as the prototype for regulations recommended to the Duma (lower house of Parliament) for passage into Russian law.

The issue of licensing the trainees to carry out future activities still has to be solved. Initially this issue was successfully addressed in Volgograd for the specialists trained in smoke reading. However, the certificates issued by EPA and used by the Russians are valid only for six months. This time period has already expired for some of the trainees, who thus have lost their certification. A longer-term solution is needed to continue the activity successfully.

In EPA's AQM efforts, U.S. expertise is used for identification and evaluation of production processes and of operation and maintenance (O&M) for the introduction of LC/NC approaches, techniques and process changes using improved technologies to achieve, in some instances, significant pollution reduction. Nine Volgograd enterprises were evaluated on major processes and associated emission points. The reports that followed included recommendations to enterprises to adopt the changes.

Basic impediments to the widespread application of low cost/no cost (LC/NC) measures are the lack of organized information on these types of measures and a consistent way to ensure their implementation, where appropriate. Therefore, the pending technical support reference manual, for use throughout Russia to identify significant source categories and proven U.S. and international control techniques, will be a valuable tool and a potential means for effecting change elsewhere in Russia through replication of project successes.

Recommendations implemented by the silica brick factory in Volgograd have shown the potential effectiveness of LC/NC measures for both pollution control and sound economic management. This plant's success so far is indicative of the environmental improvements which this sub-project can provide. It is also a good example of the direct benefits to private enterprise and should serve as an excellent model for others to emulate in Russia.

A continuing dialogue and follow-up with the remaining six inventoried enterprises would yield opportunities for forming linkages with U.S. businesses. Because the project workplan does not include activities leading to coordination with other USG agencies operating in Russia for identifying possible project linkages, the promotion of investment strategies is limited.

The training center planned for Volgograd is a positive step toward building the strategy for VEE certification in other parts of Russia as well. This center will facilitate the training of trainers from other regions of Russia and serve as a prototype for other VEE training centers. Delineated logistical steps for implementing a wider dispersal of VEE and other AQM methodologies can assist intermediate and long-range management planning and strengthening while focusing replication toward manageable, distinct activities. Final decisions on the location and other aspects of the training center have not yet been made. A management building exercise, an exploration of economies of scale from an association with an existing institute versus the level of independence from a separate center, the lessons learned from a similar EPA-assisted center in Ekaterinburg and long range goals planned for the Volgograd center would be valuable inputs to the final decision.

Suggestions were received from Russian counterparts in Volgograd that some environmental awareness activities might be directed towards the workers of the factories where environmental measures are implemented. One of the problems the managers are facing is that the O&M of plants is of low quality and that workers do not perform their duties in an environmentally sound manner. Additional programs could be targeted to the workers to make them aware of the effect which the implemented measures have on the environment in which they are living and working.

Finally, RAMP operates through extensive use of conference calls between the U.S. and Volgograd and frequent site visits by numerous EPA officials and contractors. Each workplan

activity has an EPA employee and contractor partner team assigned to oversee its completion. This operating mode, though adequate thus far in the program, may become even more cumbersome as the program matures and funds become more restricted. Although an Institute for Sustainable Communities (ISC) representative has recently taken up residence in Volgograd in order to establish the training center, this representative's functions do not include coordination of other EPA sub-project demonstration and technical activities. This would appear to argue for another long-term EPA resident representative in Moscow, or even in Volgograd, in order to coordinate activities and consolidate the gains already made.

The team found at least six discrepancies in the time line for this sub-project's planned activities when comparing the USAID/EPA overall workplan and the EPA/Research Triangle Park (RTP) workplan. Information variances between the implementers and managers of the same project appear to be symptomatic of coordination and communication issues within EPA and may merit some additional analysis.

B. Moscow Drinking Water

Istra River Basin Small Watershed Management Component

The Istra component of the EPA project is the only one which is concerned with preventing pollution due to agricultural activities and to rural settlements. This element is extremely significant in Russia, taking into account both the weight of agriculture in Russia's national economy and the fact that agricultural pollution is spread over a large part of the country.

During the field trips, the evaluation team had extensive discussions with the representatives of the range of institutes involved in this component. These discussions indicated both the commitment of the Russian counterparts to and their understanding of the sub-project and its objectives. While they were generally satisfied by their cooperation with the U.S., they indicated that they needed information and technology on several topics.

The Moscow Istra component has started later than other sub-projects and, therefore, the activities carried out until now have only related to the initial identification of the problems and the training of Russian experts in the U.S. There are, accordingly, no tangible results yet to be shown. Unfortunately, the planned activities are progressing slowly, and special effort is needed to accelerate them in order to make up for the time lost. As the Russians do not comprehend the reasons why this component of the sub-project was started so late and why the agreement between USAID and EPA could be signed only in November, 1994, any additional delays will have the effect of further diminishing the credibility of the U.S. assistance.

Appointing a Russian project director has had a positive effect on the Istra component, ensuring a coordination of the activities of the various institutes and organizations involved in the implementation. This collaboration would have been extremely difficult, if not impossible, from a U.S. base. This positive experience is instructive for other activities where no similar arrangements are yet in place for a local project director.

Istra activities related to background survey work and the assembly of necessary databases have started and preliminary reports have already been produced by Russian subcontractors. Also,

activities for preparing a curriculum for the introduction of environmental education in high schools have been started by the Moscow State University for Geodesy and Cartography (MSUGC). A general analysis of the needs of environmental education has also begun. Most of these activities are carried out by the Russians, on the basis of their proposals, which have been accepted by one of EPA's chief implementors of this component, the Center for Agricultural and Rural Development (CARD), Iowa State University. Unfortunately, there appears to be insufficient supervision by CARD and EPA of these proposals, which reflect mostly a supply driven approach, including many elements which are not directly related to the sub-project's objectives. The proposals reflect mostly the Russians' own experience and contain very little evidence of input by the American experts to the same problem. The workplan included an exchange of environmental teachers which were supposed to visit the U.S. before starting to develop the curriculum. This plan did not materialize and, as a consequence, the high school education program has been developed without information about the American system. As the activities are designed by universities and research institutes, they tend to be more academic and less directed towards practical activities. The proposals regarding work with NGOs reflect a top-to-bottom approach, the design being directed more towards telling the NGOs what they are supposed to do rather than towards developing the capability of the NGOs in environmental areas.

Activities related to farmers' involvement are incorporated in the Istra watershed activity (e.g., field days). Because the activities concentrate on pilot experiments, the Agricultural Research Institute has been selected as counterpart. If the experiment is to be generalized, then work with the farmers would have to be carried out by the Russian equivalent of extension services. Organizing extension services would be a task much beyond the scope of the present project and, if the project is to be a success and is to be replicated, other means of providing such assistance to farmers would have to be considered. One such possibility would be to involve the agronomic engineers working in the state farms, collective farms, farmers' unions and field units of the Ministry of Agriculture. It would then be necessary to design a training course for these specialists, who could thereafter work with the farmers in the future replication of the pilot projects. The evaluation team is not endorsing this, but is suggesting to USAID and EPA that they should carefully reconsider this issue, especially given the limited budgetary resources.

There are significant differences between the workplan agreed upon by EPA and USAID and the CARD workplan. Some of these discrepancies are related to new activities, which have been added by CARD, such as those in the dacha area and the studies on groundwater pollution. Other contradictions are related to the approach to the activities, mainly evident in the monitoring system. Finally, some activities necessary for achieving the stated objectives of the component have been omitted from both workplans, such as any clear evidence of improved planning.

Permitting, Compliance and Enforcement

The emphasis of this component is on improving the O&M of existing wastewater treatment facilities. This issue is important in Russia because, in most cases, wastewater treatment facilities do not achieve the results for which they were designed due to frequent breakdowns related to inadequate O&M. The component thus addresses a priority problem for environmental protection, which is important not only for the Moscow region, but for a great part of Russia. If the methods for improving the O&M of wastewater treatment plants are replicated in other cities, this component could contribute significantly to the reduction of pollution due to municipal wastewaters in Russia.

This component has also started later than the other sub-projects and, therefore, the activities carried out until now have only related to the initial identification of the problems and to the training of Russians in the U.S. As a result, there is no verifiable impact yet to be shown. Unfortunately, even after the funding agreement had been signed, the planned activities have progressed slowly, and there appears to be little evidence of acceleration in order to make up for the time lost.

The objectives of this component are difficult to quantify since they are mainly defined as "improvements" and "strengthening". Consequently, it will be very difficult, or impossible, to assess at the end of the project if the objectives have been met, in the absence of baseline data and tracking.

The workplan for this component is much more general than that for other sub-projects. It, therefore, creates the impression that the activities of the component are being designed or refined during implementation, without a very clear view of what lies ahead. The cooperative agreement with the Minnesota Pollution Control Agency (MPCA) includes only the input by this agency and has no provisions for agreements with Russian counterparts. This arrangement, which is different than the ones adopted for other sub-projects, is more suitable for technical cooperation rather than for technical assistance activities. It leaves the implementation and the sustainability concerns mostly as the responsibility of the Russians.

No Russian project director has yet been appointed for this component and the workplan does not include any provisions for such an appointment. According to the component's plan, the coordination of the implementation of activities is left very much to the environmental protection organizations of the three oblasts (Tver, Smolensk and Moscow). However, as the activities of the component get underway and as already seen with other components and sub-projects, it is important to have a local project director who can supervise the activities carried out by the various implementing organizations in Russia. Trying to coordinate the activities of all these organizations from the U.S. will be extremely difficult, if there is no person in charge in Russia.

The activities of this component give insufficient attention to economic factors. Because of overall state ownership in the past, economic issues were of little concern to Russian technicians. Now, due both to the transition towards a market economy and to the decentralization which gives greater autonomy to regional and municipal authorities, economic factors will become of greater importance and Russian engineers will inevitably be forced to take them into account in their

decision making.

The activities of this component, especially the ones related to the audits of industrial plants, are focused on the audited plants alone, with much less concern for future replicability. An institution building effort has to be made to train not only the staff of the audited factories, but also the staff of the enterprises or institutes which will handle the future audits and other environmental services. This requirement is essential to the sustainability of this sub-project.

C. Nizhnii Tagil

Because of communications and coordination concerns and given the sheer size and complexity of this sub-project, EPA made a wise decision in assigning to Nizhnii Tagil a full-time resident EPA staff person to assist in all aspects of this sub-project. While still new to the local scene, this EPA coordinator is already helping to improve the operation of this sub-project and should prove to be even more valuable in its future management. However, since his assignment is only for eleven months, because of particular quirks related to assigning USG staff to the region, EPA, USAID and the Department of State should consider jointly finding a way to assure the continuation of an EPA representative in Nizhnii Tagil during the remaining two years of this sub-project.

Regarding management, the Russians are clearly interested in more collaboration between U.S. and Russian counterparts as equal partners. For that reason, Russians need to be more active counterparts in all stages of this sub-project. The Russians have objected to excessive U.S. layering of contractors, as in the case of EPA's planned use of Pragma, a U.S. consulting firm, whose role the Russians vetoed as being unnecessary when there are qualified Russians available to provide such local support.

The Center for Environmental Training and Information (CETI) in Ekaterinburg has been created and the difficulties related to the legal status of the center have been overcome. CETI is at present fully staffed with competent personnel, has received some equipment and is active in organizing training programs. As scheduled, the earlier courses were conducted by U.S. experts and thereafter the courses are being conducted by Russian facilitators, recruited from the students who have attended previous sessions. These activities are proceeding well. However, CETI does not yet have an adequate library or access to sufficient technical documentation except the course materials prepared by the U.S. experts. Consequently, the center does not have the capability to design new courses or to adapt the existing ones to new needs.

CETI is relying, at present, exclusively on project funding, although the evaluation team was informed by EPA that future plans will address this sustainability issue. The CETI staff has no experience in fund raising. In the past, such concerns practically did not exist in Russia where the government was bearing the financial burden. It is now necessary to provide training to the center's staff in advertising, business development, fund raising, and other related areas, so as to ensure that the staff has the necessary skills to carry out these activities. ISC has indicated that such groundwork has recently started. These issues are essential for the sustainability of CETI after the end of the project.

The participants in the training courses have been selected from local government offices

and industry. There have been no major difficulties in ensuring the participation of the students in the training courses. Because the participation of the students in various training courses is funded by the project, neither industry nor local government is contributing to the expenses. This seems appropriate for the initial stage of the center's activities; however, it is not proven that, in the future, the participation in the training courses will be the same if industry and local government will have to pay for the courses.

The activities related to the improvement of environmental quality are viewed by the Russians, at least at the central and at the oblast level, as being the most important of the sub-project, because they will directly contribute to the reduction of pollution in Nizhnii Tagil. Basically, the Russians' expectations are not to receive only general advice on the solutions, but also to obtain the technological know-how to implement detailed recommendations. The audit is not viewed as an end in itself, but just as a means to those ends. Unfortunately, these activities are the ones which are lagging behind. As not even the recommendations of the first audit have yet been implemented, the Russians consider that the sub-project does not have any achievements to show. This frustration by the Russians can partly explain their reluctance to get involved in other audits until some practical results can be shown.

While the EPA concentrates on LC/NC measures, the Russians are aware that even if these solutions will improve the situation, they can be considered only as a first step and would also like to know how to proceed further, so as to meet the standards set by Russian regulations. These standards, which are practically never met, are stricter than U.S. standards and the goal of meeting them is considered unrealistic by the U.S. experts. However, there is a low probability of this point of view being accepted by the Russians if the solutions of achieving a more advanced treatment are not investigated and their economic costs not estimated.

The audits' organization and implementation, involving the Russians experts in the data collection stage and not in the formulation of actual recommendations, has had two adverse effects:

- " It has reinforced the suspicion by some Russians, used to keeping many of the data classified, especially in an until recently closed city like Nizhnii Tagil, about why the U.S. is requesting heretofore highly sensitive data because it is not clear why many of these data are required;
- " It has lengthened the process of implementing the recommendations, as these are first formulated by the U.S. contractors and thereafter analyzed and accepted or rejected by the Russian counterparts. Because the Americans cannot present cost estimates, this procedure also requires that the Russians make the cost estimates later on their own.

If the climate of cooperation is to be significantly improved, it is imperative that the entire process be carried out more collaboratively by the U.S. and Russian experts who should together formulate the recommendations, including the cost estimates, and submit these joint recommendations to the approving authorities. In this way, the recommendations would not be viewed as being presented by the Americans to the Russians, but as being presented by a team of experts (U.S. and Russians) to the decision makers. It would thus be advisable to reconsider

training Russian experts (from national consulting firms, as local ones do not usually exist) for the provision of environmental consulting services.

The workplan provides for four additional industrial audits. These audits could be diversified, in order to develop a methodology to cover various situations. They should, in any case, cover the audits for air pollution, which is considered by the Russians as being the first priority for Nizhnii Tagil. It might be advisable to also include one of the old pits of strip mining, used as a dump for waste deposits. The open pits may not now be the major cause of pollution in Nizhnii Tagil; however, the problem is viewed as extremely important by the local environmental NGOs. Thus, it would make sense to carry out such an audit to indicate that the investigations are carried out at the sites requested not only by the local authorities but also by the NGOs.

While emphasis has been put on monitoring techniques, an important problem facing the Russian counterparts is data storage and processing as well as the access to the stored information. At present, the data are stored by various organizations, mainly on hard copies, which makes data processing cumbersome and the data difficult to access. A study of the informational system is required to improve this situation and also to ensure that these data are accessible to the NGOs and other private sector organizations. The informational system should be computerized to facilitate the exchange of information among the various databases.

While the project has made significant progress in the involvement of local communities in environmental issues, the NGOs created are still frail. Given the still strong vestiges of the past, the activities of the NGOs would probably not be taken very seriously by the local authorities if these NGOs had not been supported by the project. These NGOs are committed to their tasks, but still have insufficient knowledge about how an NGO works and how they can broaden their base and involve more people in their activities. It is necessary to continue to support to the NGOs in order to ensure their survival after the end of the project.

The replicability and sustainability of this sub-project is strongly dependent on the existence of firms which have been trained and which could be able to replicate the exercise for other industrial plants. Because such enterprises do not often exist, it would be advisable to include in this institution-building effort training the staff of one or more existing institutes in this type of activity. As the replicability is not limited to Nizhnii Tagil, it would be advisable to identify a national organization which would be in a better position to cover other areas of Russia. The problem is similar in the Moscow Drinking Water sub-project, and it would be advisable for both sub-projects to cooperate and concentrate their institution-building efforts by associating the same organization to both sub-projects.

D. Cross-Cutting Concerns

1. Environmental Policy and Institution Building

According to the original project authorization documents, this component of the EPT project was designed to assist in the development of new environmental policies, laws and regulations in Russia. The project is intended also to organize and conduct training programs to strengthen environmental institutions.

Environmental Policy

As originally conceived, this project was intended to contain a major policy component at both the macro and the micro levels. USAID planned that the macro policies would be mostly addressed by the Harvard Institute for International Development (HIID), while EPA would take the lead role for the micro or environmental sector policies. As the project began to get underway, however, EPA turned its attention to more regional activities as well as to specific technology matters. This modified approach complemented the site specific evolution of this project very well, wherein several activities were already planned for such localities as Volgograd and Nizhnii Tagil. It also supported USAID's broader objective of encouraging wider participation at the local level in political and economic decision making.

Unfortunately, this adjustment in approaches, while justified in some ways, created problems in other areas. For example, there was less emphasis during the earlier stages of the overall projects on working with central Russian government offices in trying to shape improved policies for the environmental sector. HIID was also just getting started, but its mandate confined HIID's plans and operations to broader economic issues. EPA subsequently moved more actively into the sectorial or micro-policy arena as it gained more experience in Russia and as the conditions in the central government offices became more conducive to this type of cooperation. It is worth noting that the Prime Minister recently approved a priority environmental program and budget for Nizhnii Tagil, the implementation of which will be overseen by the central government, a sign of the Russia's increasing policy commitment.

During the course of its work, EPA quickly realized that Russia's legal structure was not sufficiently supportive of the type of environmental policy reform that was needed. When EPA proposed several initiatives in this area, USAID seemed to have taken an overly narrow view, perhaps driven by budgetary forces, about the priority of such activities and whether they should be embarked upon in the context of this project and its existing or anticipated funding. To its credit, EPA, while not receiving any extra budgetary resources from USAID, eked out funding from existing finances to work on a number of needed legal matters. A joint U.S.-Russian Legal Task Force was set up to identify key legal issues which could or should be addressed. USAID has wisely recommended that HIID participate actively in this Legal Task Force in order to better reflect economic perspectives of environmental policy and legal issues, consistent with the Project Memorandum, and also to share HIID's experience in working with the central government legislature. In the meantime, EPA has increased its own efforts with central government offices which hopefully will result in improved legislation and policies affecting the environment.

Institutional Development

The project calls for institutional development at various levels, including central and local environmental agencies, organizations providing environmental consulting services, factories and enterprises, training institutions and NGOs. Not all of these levels have been equally covered by the project.

In the course of its work, EPA's efforts have had a positive effect on the institutional development of local government offices, specifically in Volgograd and Nizhnii Tagil. Issues are increasingly raised at the local level, involving local and central government officials, in a way

more conducive to problem solving than has been evident under previous systems. Some NGOs have been assisted by the Institute for Sustainable Communities (ISC), which deserves mention for its work in Nizhnii Tagil in assisting local training institutions. The results in the Moscow region are less evident because of late starts due to budgetary problems, the more diagnostic approach used and less Russian collaboration in actual decision making. Overall more could be done in applying the lessons learned from recent experiences in one region to comparable situations in other communities. For example, ISC's educational work in Nizhnii Tagil/Ekaterinburg would appear to be very instructive for the Moscow region as it is now planned for Volgograd.

In general, there has been limited progress thus far in working with the private sector or with other forms of enterprise in Russia. While a small group of Russian firms have benefitted (e.g., a silicate construction materials plant in Volgograd), a vast number have not been affected because of limited resources or time by the visiting EPA experts. Opportunities appear to have been missed by USAID to network these Russian enterprises to other USAID-funded projects, e.g., International Executive Service Corps (IESC) and to other USG programs, e.g., the International Visitors Program of USIA, the U.S. Information Agency or the various business promotion activities of the Department of Commerce). The result has been a gap in contacts and momentum with perhaps some environmental problems in Russian firms left unattended. In addition, there has probably been a loss of business development opportunities for both U.S. and Russian firms.

A definite bright spot in the institutional development area has been many of the training programs funded by USAID and utilized by EPA as either part of this particular project or used in conjunction with EPT, e.g., the NET scholarship program administered by the Academy for Educational Development. This has been a great success in bringing Russians to the U.S. for technical training as well as awareness building. Of lesser benefit, but still very positive, have been some of the local training programs designed and administered by EPA in Russia. The courses have introduced new concepts (e.g., pollution prevention, risk analysis), but have often required several iterations in order to make them sufficiently relevant to the Russian experience.

EPA has also skillfully incorporated, by reference, the USAID-funded commodity import program (CIP) dedicated to the environment and energy sector as a way of enhancing the effectiveness of local institutions and enterprises. This use of the CIP can also better direct commodities in a purposeful way, could facilitate accelerated procurement and assists in U.S. market penetration in a key sector. However, the division of the equipment between the parts procured with project funds and under the CIP program has not always been rational from an operational point of view and, as a consequence, some sub-project activities could not be started in time because some equipment, essential to the project, was allocated to the CIP. Also, since the CIP procurement process takes on average, a year to complete from the receipt of technical specifications, EPA sub-project coordinators should to plan accordingly. Such apparent delays in sub-project activities due to the CIP procurement procedures are often unfairly blamed on EPA by the Russians.

2. Technology Cooperation for Environmental Improvement

According to project documents, the primary objective of the technology cooperation and environmental improvement component in the EPA administered portion of the EPT project is to influence environmental investment decisions in select regions by helping to set clean-up priorities.

This involves Russian firms, local and central governments and their potential financiers, particularly the World Bank and the European Bank for Reconstruction and Development, and, in the process, seeks to demonstrate the application of U.S. environmental technology. The three areas within which EPA is concentrating its technology transfer efforts in Russia are air quality management (AQM) in Volgograd; water quality and quantity management in the Moscow region; and multi-media activities, involving drinking water, waste water and air quality concerns, in Nizhnii Tagil.

Project Design

The scope of the EPA portion of the EPT project is not only to implement pilot plants to demonstrate the ways in which better environmental practices can reduce the level of pollution, but also to create the conditions in which these pilots can be replicated. Without such extension, the demonstration plants alone will not contribute significantly to the solution of the environmental problems in Russia. Because sustainability is an important cross-cutting concern, and is included in the agreed upon workplan, it is desirable for EPA to identify more of the conditions which make this replication possible and to ensure that these conditions are met. Otherwise, it is difficult to assess whether the activities are sustainable or not.

Steps which EPA has taken in this direction are the ones related to legislation and regulations, training and some efforts to investigate future funding sources. Solving such problems is an essential condition for the sustainability of the overall project, but by no means the only one. EPA could also consider outlining a strategy for replicating or generalizing the outputs of its activities. The purpose would be to identify if, besides the demonstrations of new techniques, institutional measures would be necessary to support the replication. Consequently, EPA could involve such institutions more in the present sub-projects to enable them to obtain a better understanding of the issues and then add specific training to familiarize Russian counterparts with the related methodologies and techniques. This activity and the budget should be periodically reviewed, taking into account the project's progress, to assess if new needs have been identified and objectives met.

Though the Nizhnii Tagil sub-project and the Permitting and Compliance component of the Moscow sub-project are presented as having different objectives, a great number of the activities of the two sub-projects overlap and have a similar scope. The activities of both sub-projects cover monitoring of water quality and improvement of the pre-treatment of industrial wastewater. The duplicative nature of some of these activities could merit examination by project management.

All three regional sub-projects are conceived as diagnostic and demonstration activities putting more emphasis on monitoring rather than on longer term, sustainable results. While not denying that LC/NC measures might represent a first step in solving their environmental problems, the Russian counterparts expect more outcomes of these sub-projects and have repeatedly expressed the desire to become acquainted with more advanced technologies for further treatment of the effluents and emissions. They, therefore, expect that the recommendations coming from the various audits will include recommendations on future investments for which they would consequently try to find sources of financing. Since many of these advanced technologies are not available in Russia, they might thereafter approach other donors or U.S. companies for the construction of such plants. The recent \$2 million grant from the central government plus the authorization to raise local

revenues in Nizhnii Tagil is clear evidence that the Russians are serious and are beginning to make available funding for larger scale investments. The evaluation team understands that USAID and EPA have been in contact with the World Bank's Washington offices to explore the use of the Bank's pending loan as a possible source of funding, as specified in the project's workplan.

In the design of the sub-projects, little, if any, measurable results are identified. This factor, plus the absence of databases, makes monitoring the project's impact and the final assessment of all components and sub-projects difficult. While the agreed upon workplan makes a more serious attempt in this regard, much of these data are more related to input or the first level of outputs, rather than actual project results or impact.

Technology Transfer

The technical assistance component of each sub-project is designed toward technology transfer, pollution reduction and management of production processes. The technology transfer components of the three EPA sub-projects are progressing somewhat unevenly and disjointedly because of different approaches used, varying time schedules at least partly related to budgetary issues, and the apparent lack of a central clearing house of information for the sub-projects to learn from one another. This less than optimal level of coordination among like activities, plus the limited funding thereby, reduces the potential for ultimate solutions and synergies created and leads to the replication of redundant activities.

Each demonstration activity relies heavily on technology transfer for AQM and wastewater treatment. Each requires close operational coordination and training for transfer of methodologies to achieve sustainable environmental improvements. Due to the similarity of concerns, there is scope for replicating activities completed in some sub-projects. Thus, the VEE technique used in Volgograd would also be useful in Nizhnii Tagil. The wastewater activities in the Moscow district also include the audits for the reduction of heavy metals in industrial effluents, which have been completed in Nizhnii Tagil. As it is assumed that, after the end of the project, the newly acquired technology will be transferred throughout Russia, such cases would provide an opportunity for testing the ways in which this transfer could be achieved. A shortfall in the design of the sub-projects is the lack of planning or testing replication opportunities. When duplications occur, the workplan of each sub-project includes the activities as if no other similar experience was available in Russia. In addition, few attempts have been made to put the Russians in charge of the replication, to monitor it and to take corrective measures, if required.

The EPA project activities include data collection and monitoring, but much less data storing and processing. Actually, there are more data available in Russia than in many other aid recipient countries. The main problem is that these data are not easily accessible since they are collected by different entities and are stored, mainly on hard copies, in various places. This makes it difficult to identify, access and process the data. It would be advisable to carry out a system analysis and to design an improved system of collecting, storing and processing the information, mainly using computer systems. Russia already has the technology for graphical processing of data using Geographic Information System (GIS) techniques, which could be applied to and would be very helpful in this project. The need for such databases is common to all sub-projects. However, the activities for designing the database should be common for all sub-projects to enable, in the future, processing of environmental data to cover larger territories.

Environmental Improvement

Because the project is mainly designed for demonstration of new methods and techniques, it will only solve some typical pollution problems in individual pilot plants or sites. These plants will not contribute essentially to a reduction of the overall pollution in heavily polluted areas such as Nizhnii Tagil or Volgograd, but will show the ways in which such environmental problems can be solved. At the level of the individual polluters, however, the impact of the project can be significant. It is conceivable that non-point source reductions may result in improved raw water quality in the Moscow watershed. However, the activity is not yet far enough along in its implementation and there is insufficient evidence to quantify this. It must therefore be concluded that, aside from progress in some plants in Volgograd, very little pollution prevention or reductions have yet taken place although considerable steps are being made toward introducing new techniques and technologies to the areas of these sub-projects.

3. Public Awareness and Training

Activities for creating public awareness have been concentrated on including an environmental awareness course for high school students, both in Moscow and in Nizhnii Tagil. In both cases the curriculum has been designed and steps are being taken to train the teachers and start the courses in the Fall of 1995. The activities have taken place independently for the two sub-projects, with no contacts with one another. Comparing the two outputs, the Nizhnii Tagil curriculum appears to be closer to the needs of the project, while the approach in Moscow is much more theoretical. Coordination of the two sub-project activities would be beneficial. It would also be advisable to revise the curriculum designed by MSUGC to make it more practical.

The training activities of all sub-projects have started and are proceeding according to plan. In each sub-project, a number of Russian specialists have been trained in the U.S. under this or another USAID project. The participants in this training who have been interviewed by the evaluation team have indicated that they considered their training extremely useful and well organized.

The selection of the personnel to be trained seems to take into account exclusively the current activities of the project, with little or no concern for replication of the results of pilots completed under the project. The team was told by ISC that a strategy for the future replication has been developed under the project, but that it has not been implemented yet because ISC is allowing for more time for CETI to develop as an organization. Though this will not affect the outputs of the project in itself, it could have adverse effects on the sustainability of the results. This concern is apparent in the activities related to the audits generally, as well as in those related to farmers' involvement in the prevention of non-point pollution in the Moscow region.

Related to the audits, EPA training has concentrated on the staff of the factories which have been audited and have cooperated in the collection of basic information. The recommendations on the measures to be implemented are developed by the U.S. experts, with practically no Russian participation. They are presented to the Russian counterparts who accept or reject them. However, if future audits are to be conducted in other enterprises, the new audits will not be done by the same Russian staff, because they would be carried out in other factories and even in other cities. As the

staff has been trained mainly on monitoring and assessment of the actual situation, this staff would not be trained in identifying solutions and making recommendations.

The objectives for the Nizhnii Tagil sub-project indicate that private consulting firms should provide such environmental services, and while there are no similar provisions for the other sub-projects, the team has been told by EPA that some enterprises from Volgograd have participated closely in audits and the writing of a manual. This issue is relevant also for other regions and, at least in Moscow, there are consulting firms which conduct studies all over Russia. An example of such a firm is Vodniiinformproekt, which is 51 percent privately owned and is involved in the Istra watershed component of the Moscow sub-project. Discussions with the management of this firm have indicated that they would be willing to work in environmental services. This can only be achieved if this and/or other consulting firms are included in the audit process and are trained accordingly.

Except for the Volgograd environmental training center, for which there are some provisions to build on the experience of the Ekaterinburg center, there are practically no links among the training activities of the various sub-projects, even when the objectives of the training are similar. Thus, the training on audits in Moscow, Volgograd and Nizhnii Tagil is done completely separately and the training programs are handled by different entities (either different sections of the EPA or different contractors). There is also no apparent contact among the Russian entities which are cooperating in the training program. This inevitably leads to duplications of efforts and probably to increased costs, due both to the preparation of separate training materials and to the increased travel by U.S. experts.

There has been limited effort allocated to preparing materials which would make the positive experience of the project known to interested parties. An example would be the results obtained by the silicate brick factory in Volgograd. However, this replication will not happen if the other factories are not made aware of the results obtained in Volgograd. No materials which could create such an awareness have yet been produced by the project.

E. Project Management

The management of the EPT project, including EPA's portion, has been at best a complicated and difficult one. Because the origin of the project, like many others, was largely political, many short-cuts were taken in the design and early implementation of the project's activities. These undoubtedly made sense at the time as different branches and agencies of the USG pushed USAID to get activities underway quickly. However, left uncorrected, these design flaws and administrative expediencies hindered the later management of the project. USAID has had many experiences in its history where this has occurred before in politically driven programs and the lessons are there to instruct.

It appears logical that the leading management responsibility for this overall project was assigned to USAID. The nature of the technical assistance activities is the mandate of USAID and the environmental sector is certainly one wherein USAID has ample experience, particularly recently. It was also appropriate to assign major implementing responsibilities to EPA, given its background of contacts with the Soviets plus its own technical expertise. However, because EPA is overwhelmingly a domestic U.S. regulatory agency, many of its systems and approaches did not

always mesh well with those of USAID (e.g., financial reporting,) and it was not as familiar with managing results oriented foreign assistance projects in an extremely difficult foreign environment.

While OIA has the overall coordinating role for EPA, following EPA's apparently usual procedure of dispersing sub-project management tasks around the many semi-autonomous offices of EPA in the U.S. (all of whom have other more primary EPA responsibilities) coupled with the increasing number of contractors, made for a complicated and unnecessarily cumbersome management structure. At the same time, USAID was being reminded by its own auditors and legal counsel, as well as the Congress, that it was indeed responsible for the full management of and accountability for these USAID project funds. The result made difficult communications and increased tension between USAID and EPA about project roles. The files reviewed by the evaluation team and discussions held with USAID, EPA and Russian interlocutors provide many examples of this management problem, not the least of which has been the lengthy staff time spent in developing workplans as the two agencies debated issues.

While in Russia, especially in visiting project sites, the team heard numerous complaints from Russians about the lack of full collaboration between the U.S. experts (EPA and some contractors) and their Russian counterparts. This was a repetitive theme (most often referred to by such comments as "Russians are not in the middle of a desert!") regarding the approaches or styles sometimes used by U.S. experts perhaps not used to dealing with foreign nationals and especially those as sophisticated as the Russians. This fact, coupled with delays in finalizing recommendations in sufficient detail, the number of visits it took for the many U.S. experts to achieve their tasks and an often high degree of Russian suspicion or unfamiliarity with U.S. and Western methods, all contributed to significant frustration levels for many Russians. While much Russian enthusiasm continues about working with Americans, the above mentioned factors have also led to some disappointment which, if left unchecked, could erode earlier progress.

In the Nizhnii Tagil sub-project and in part of the Moscow drinking water sub-project, the field operations are run with the help of Russian project directors, appointed and paid for by EPA. This arrangement has worked well and the Russian project directors have been extremely active in ensuring the cooperation of the various local organizations participating in the project. However, in the permitting and compliance component of the Moscow sub-project, no Russian project director has yet been appointed and this may be one of the reasons why there is less progress in this set of activities. There seems to be less of problem in this regard in Volgograd, partly due the active role of local leadership.

Another management issue observed by the evaluation team includes the absence, until recently, of any longer term EPA presence in Russia. This has led to numerous communications problems among USAID, EPA and Russians counterparts. It should be noted that EPA has recently assigned an EPA employee to Nizhnii Tagil who is having a positive effect on the implementation of this part of the project in dealing with the Russians, internally with EPA as well as with USAID. Unfortunately, his assignment is only for eleven months, even though the project there has another two years of implementation, reportedly due to Department of State concerns about USG presence viz-a-viz Russian presence in the U.S. There are also plans for EPA to assign an employee to Moscow as called for in the current workplan.

An additional management problem noted is USAID directing this project from Washington, despite the number of on-the-ground activities, and the need to deal with counterparts

and other donors in Russia. The earlier lack of qualified staff in the field has been ameliorated. As several other USAID projects and USG agency activities are currently underway in Russia, there is an opportunity to coordinate these numerous programs in order to maximize their individual and collective impact. This is extremely difficult to do well from Washington. A few selected project authorities have been delegated to USAID/Moscow and the team was told that USAID/Washington is currently working on a broader delegation of authority to the field more typical of other USAID experiences where there is a resident mission with requisite staff. The issue has been negotiated and such delegation of authority has now occurred.

5. RECOMMENDATIONS

A. Volgograd - RAMP

1. EPA should continue its work with the local authorities in Volgograd to resolve the issue of expiring VEE certifications. It makes little sense to train Russian experts in this skill and then to adopt the EPA period of eligibility, which expires after only six months without any current means of recertification.

2. EPA should consider further advising VESA and local officials in Volgograd about the most realistic site and arrangements for the establishment of a training center there. Together, EPA and ISC should consider applying in Volgograd the experience of establishing (with ISC help) a similar training center in Ekaterinburg. Serious consideration should be given to some association with the local institute in order to avoid duplications of activities and any unnecessary competition. Sustainability should be a major criterion in this activity.

3. USAID and EPA should develop plans and procedures to further publicize the results of the AQM operations in Volgograd.

4. When the guidance manual for the use of LC/NC measures is completed in September, 1995, it should be made available throughout Russia, especially where the EPT project is operating.

5. EPA should reassess its use of staff for the Volgograd sub-project. There are at least 18 EPA officials listed in the workplan as responsible for some aspect of this sub-project, plus increasing numbers of contractors. More concern should be given to work and cost efficiencies particularly as the sub-project is operational now and as budgetary constraints gain importance.

6. As noted in other sub-projects, EPA/Washington, EPA/RTP and USAID need to reconcile the differences among the various workplans so that all parties concerned, not the least of whom are the Russians, are in agreement about sub-project activities planned and underway and the budgetary resources required, placing particular emphasis on the sustainability of such functions.

B. Moscow Drinking Water

Istra River Basin

1. Because the Istra component of the EPA project is the only one which is concerned with preventing pollution due to agricultural activities and to rural settlements, it is recommended that some form of this component be completed, subject to funding availabilities. USAID, EPA and CARD should work together to specify the details of such completion and the budgetary resources needed.

2. Both because of the time required for implementation and of the need to show tangible results of the sub-project, the preparation of facilities for demonstration of technology and methods of manure utilization in large livestock enterprises, scheduled to be completed by June, 1995 and not yet started, should be given priority. EPA and CARD should finalize the technical solutions for

such field demonstrations as soon as possible.

3. The discrepancies between the EPA/USAID and the CARD workplans should be reconciled. For example, the on-going study of the ground water contamination in the dacha area is in the CARD workplan, but not in the USAID/EPA version. Any inclusion of new activities should first be approved by EPA and USAID, before CARD starts implementation. Due to the high number of cooperating institutions, the revised workplan should also indicate the institutions involved in the implementation of each task and the budget needed.

4. EPA and CARD experts should increase their input to the data collection exercise, especially on the set-up of the environmental database. Assistance should also be provided in data processing and in mapping techniques. These tasks should be accelerated and the workplan should be modified accordingly.

5. EPA, USAID and the Russian counterparts should jointly assess the need for mathematical models to meet the objectives of this component, particularly in view of the budgetary constraints.

6. EPA and CARD should assure closer collaboration between the Russian and American experts for all tasks contracted with Russians. The present system of reviewing the final outputs of the Russian contractors should be replaced by a system in which both teams work together and the output is the result of common efforts.

7. EPA and CARD should review more closely the proposals of the Russian contractors for the public outreach and education, making them consistent with the approved and more limited objectives of the EPA/USAID workplan. This review should:

- " eliminate tasks which are beyond these objectives;
- " modify the top-to-bottom approach and insist on public participation in the decision making process;
- " insist on the practical activities of environmental protection and awareness and greatly reduce or probably eliminate the research for a comprehensive educational system;
- " include assistance to the NGOs in order to strengthen their management and structure, giving them the capability of effectively representing the interests of the citizens and in broadening democratic participation on environmental issues;
- " include more active participation by the U.S. experts to ensure the transfer of U.S. methods and approaches; and
- " assure closer monitoring of the activities of the Russian contractors, such as periodic reviews, to guarantee that the final output is consistent with the scope of the sub-project.

8. EPA and CARD should arrange for visits to the U.S. by teachers as well as by experts involved in the design of the educational programs. These visits should precede the finalization of the curriculum for high schools and for other programs, so as to enable the incorporation of U.S. experience in the training programs.

9. EPA should limit the monitoring system to the creation of experimental systems for the monitoring of point and non-point agricultural pollution as indicated in the CARD workplan. The extension to the Oka-Moscow basin, even with additional input from Germany, should not be attempted under this component, as it would loose its focus and be beyond the objectives of the sub-project.

9. EPA and CARD should design more precisely the activities necessary to achieve the planning objective of this component. The preparation of an environmental management strategy to replicate the results over the river basin is essential for this component's sustainability. Assistance should also be provided in simplified planning techniques adapted to market economies.

10. EPA and CARD should develop training programs for the staff of the institutions, which would be in charge of replicating the results of the sub-project, not only in the environment sector but also in the agricultural and water management sectors. This effort should also focus on strengthening the institutions which will be responsible for the replication. Such activities, which are not now included in the workplan, are essential for the achievement of the stated objectives of the Istra component.

11. EPA, CARD and USAID need to maintain closer contacts between the Istra team working on the legal, regulatory and administrative review and the Legal Task Force so that the Legal Task Force is involved in the discussions of the preliminary reports and has the opportunity to request the corrections considered necessary for the support of these activities.

Permitting, Compliance and Enforcementy

1. EPA should accelerate the placement of a Russian project director in the field with the objective of designating such a project director as soon as possible. This is essential if the activities of the component are to be accelerated and sustained.

2. Because the proposal to appoint a half-time director through WHO funding may take too long to materialize, since no agreement has yet been finalized with WHO and also due to the time consuming hiring procedures of the U.N. system, EPA and USAID should reconsider this approach, especially if the director is not fielded shortly.

3. EPA needs to accelerate the pace of implementation, at least in the industrial wastewater treatment where there is also a need to implement new treatment techniques, which at present are not even identified yet. Otherwise, the sub-project will not be completed by 1997, the project's current activity completion date.

4. EPA, in consultation with USAID, needs to revise the objectives of this component so that the outputs are measurable.

5. EPA, again in consultation with USAID, should reformulate the workplan, covering the entire period until completion. The revised workplan should ensure that the activities and tasks are adequate to meet the objectives of the component, define the tasks in detail, indicate the responsible parties, set target inception and termination dates for each task and fit within a tight budget.

6. EPA should involve one or more Russian consulting firms (probably privatized design and research institutes) who would specialize in providing environmental services, so as to enable them to gain the necessary expertise in performing the audits of industrial wastewater systems. The staff of these institutes should be associated with the U.S. contractor, participating not only in the data collection exercise but also in the formulation of the recommendations, for greater sustainability.

7. EPA needs to put more emphasis on economic analysis in the training of Russian engineers and in identifying solutions.

8. EPA should also focus the monitoring activities on the computerized data processing and on an informational system to make the data more available to all interested parties. This would imply, as a first step, the assessment of the necessary hardware and software. As the project does not have sufficient funding for this procurement, the possibilities of using CIP funding should be explored and the specifications should be prepared. Training of Russian experts on the use of the computerized monitoring system should be included in the training activities of this component.

C. Nizhnii Tagil

1. EPA should consider accelerating the activities related to the improvement of environmental quality, not only in the audit phase, but also to support the Russians in the implementation of EPA's more detailed recommendations.

2. Besides LC/NC measures, EPA should also investigate more advanced water treatment techniques. EPA should consider as a first step in this direction assessing the design of the drinking water treatment plant, prepared by the Russians, and making appropriately detailed recommendations, including costs, for its improvement.

3. EPA should assure closer collaboration between U.S. and Russian experts for the audits. The recommendations, including cost estimates, should be jointly formulated and be presented as such to the approving authorities for review and decisions.

4. EPA and USAID need to consider more the issue of training Russian experts (from national consulting firms, as local ones do not often exist) for the provision of environmental consulting services. These firms should be involved in the process of auditing and formulating recommendations.

5. EPA should diversify the objects of future audits to cover various situations. They should concentrate on air pollution, which is considered by the Russian authorities as being the first priority for Nizhnii Tagil, but also investigate the environmental problems raised by the old pits of strip mining and their use as dumps for waste deposits, which have been identified by a local NGO

as a serious problem.

6. EPA should finalize the monitoring exercise by an analysis of the informational system, which then should be computerized, to help in the exchange of information among the various databases.

7. EPA should ensure that the analysis and training provided by the Ural Polytechnic Institute focuses on the institutions identified as in charge of maintaining parts of this database.

8. EPA, USAID and ISC should provide further support to local NGOs through training on managerial issues, such as fund raising and awareness creation, in order to assure greater sustainability. It is also recommended that support be provided to NGO's in setting up links with U.S. and other NGOs, especially with NGOs involved in international environmental activities.

9. USAID, EPA and ISC should arrange further visits by environmental teachers and trainers from the Pedagogical Institute to the U.S.(possibly to Chattanooga with which Nizhnii Tagil is linked) to enable them to get a better understanding of the U.S. educational system as it concerns the environment.

10. EPA and ISC should continue to provide additional training in management for the staff of CETI to familiarize them with the procedures of fund raising and of generating the interest of potential sponsors. This type of training is essential to the sustainability of the Center after the sub-project is completed.

11. EPA and ISC should conduct a managerial analysis of the current and future roles for CETI and the Polytechnic institute in order to better define respective responsibilities and areas for cooperation, again to assure the sustainability of these functions.

12. EPA, ISC and USAID should consider added funding for the library of CETI to enable it to have access to the documentation required for preparing training courses and for disseminating environmental information. This is essential for making the experts of the Ural area aware of the progress outside Russia.

D. Cross-Cutting Concerns

Environmental Policy and Institution Building

Environmental Policy

- 1) EPA should increasingly work with USAID, HIID and its Russian counterparts to direct more attention to the policy making functions of the central government, including the legislative process, to assist in the development of improved policies for all parts of Russia for more effective pollution prevention and control. Such work should be cross-referenced to other parts of the project. For example, the progress being made in Volgograd should be extended to the issues being addressed at both the central and local government levels in the air monitoring work underway or planned in Nizhnii Tagil. Cost considerations should be included so that otherwise good policy proposals do not cause economic concerns

particularly in light of Russia's current problems.

- 2) EPA and USAID should continue to pursue the legal aspects of environmental policy reform as necessary in advising the Russian Government on drafting improved environmental laws and regulations. The different conditions in the three sub-projects should be carefully considered as well as some of the similar experiences in Eastern Europe in terms of lessons learned. This legal work should receive priority attention in allotting available budgetary resources.
- 3) Because of the critical nature of the economic ramifications of environmental policies and programs, HIID should continue to participate actively as a member of the Legal Task Force to advise on the specific economic aspects of such policy issues.

Institution Building

- 1) EPA's environmental policy advice should continue to be grounded in local experiences, as in Volgograd and Nizhnii Tagil, in order to assure its relevancy and to elicit support. EPA should also work with Russian counterparts to write case studies as a way of documenting successes and to inform others in comparable situations of the lessons learned.
- 2) While a start has been made (Nizhnii Tagil and Volgograd), EPA and USAID need to involve more fully the private sector, both Russian and American. This will have the benefit of not only helping to realize the benefits of pollution prevention and control measures, but also to aid the development of more free market enterprises. USAID should specifically oversee more extensively the networking of EPA activities with other USAID-funded projects (e.g., IESC) and other USG programs (Commerce), especially as they involve the private sector.
- 3) EPA and ISC should replicate the very positive example set by ISC in Nizhnii Tagil in working with local institutes and NGOs to the extent possible in Volgograd and Moscow, carefully taking into account the important sustainability issues.
- 4) USAID and EPA should identify institutions, preferably in the private sector, which could specialize in providing environmental services, such as conducting environmental audits, and strengthen them so as to perform the audits. To ensure this, and before completion of the EPA project:
 - " Russian staff of these institutions should work closely with the U.S. teams conducting audits, so that they become acquainted with the auditing methodology.
 - " The Russian staff of these units should be included in the training, having special training programs designed.
 - " More staff of these institutions should also be trained via study tours in the U.S., visiting consulting firms which specialize in environmental services.

- 5) EPA should assure that the experience gained by setting up CETI in Ekaterinburg is applied to setting up a similar center in Volgograd. Permanent contacts between these two centers should be formalized to enable them to exchange information.

Technology Cooperation for Environmental Improvement

- 1) EPA and USAID should revise workplans indicating the links between activities and funding. Where no results are yet evident and the prospects for such are distant, such activities should receive lower priority.
- 2) In view of the budgetary constraints, EPA and USAID should determine cross-links between activities of the sub-projects and eliminate duplications by combining similar activities.
- 3) EPA should increase involvement with its Russian partners in the planning and implementation of activities in all sub-projects.
- 4) EPA and USAID should up-date their recently agreed upon workplan so as to include as many impacts and results as possible and indicate clear steps to attain sustainability.
- 5) EPA should conduct a systems analysis of the environmental data system to define a common approach and as many common activities as possible for all sub-projects. This should:
 - " Study the present system of data collection, transmission and storing in order to streamline the process.
 - " Design a computerized database for environmental data, including the graphical processing of the data (GIS).
 - " Procure the required software and hardware.
 - " Train Russians in all sub-projects to use the database.
 - " Design procedures to ensure access to the database.
 - " Use the database in activities and keep it up-to-date.
- 6) EPA and USAID should prepare a plan for replicating the outputs of each sub-project, identifying the measures needed to support the replication. This should be periodically reviewed taking into account the sub-project's progress and funding.
- 7) EPA should emphasize more the economic aspects of environmental protection, especially related to market economy mechanisms. The costs required to achieve various degrees of clean-up should be assessed, to enable the Russians to analyze the degree to which their strict quality standards are economically applicable or will create excessive burdens to the

enterprises, many of which are in bad economic condition.

- 8) Because the CIP procurement process requires about one year to complete, EPA should not rely on such purchases for items which are essential for the success of the sub-projects. Instead, such equipment should be financed from sub-project funds, with the CIP providing only ancillary procurement.
- 9) Local enterprises which could not receive direct aid from EPA for the implementation of environmental protection measures should, wherever possible, be referred to other USAID projects or implementing partners (e.g., IESC, CH2M Hill) or to other USG programs (e.g., USIA, Commerce).

Training and Public Awareness

- 1) EPA and USAID should continue training as a key part of this environmental program, whether funded from this project, and whether in the U.S. or Russia, although special effort needs to be taken in the latter case to assure its relevancy.
- 2) EPA and USAID should identify cross-links among the activities of the various sub-projects and eliminate duplications of efforts by combining similar activities. This requirement would also cover training, education and community involvement. In case some activities are on-going, such as the training for environmental awareness in high schools, this would involve the revision of existing contracts with the MSUGC and with the Nizhnii Tagil Pedagogical Institute in order to define different tasks for each of them.
- 3) EPA should extend public awareness programs to other target groups than school children, such as factory workers. This would enhance the quality of O&M at the plants, as the workers would not only understand the technological benefits but also become aware that the measures are good for their own health.
- 4) EPA and CARD should use the lessons learned from the public awareness activities tested in Nizhnii Tagil to apply them to the Moscow region in order to avoid duplications of efforts.

Project Management

- 1) USAID, EPA and other concerned USG agencies should confirm the respective roles in this project, emphasizing USAID's overall management, legal and accountability responsibility and EPA's major technical and implementing function.
- 2) USAID/Washington should delegate full project management authorities to USAID/Moscow as soon as possible, consistent with USAID's more normal operating procedures and considering the in-country management responsibilities required by the many on-going operations of this large and complex project.
- 3) USAID/Moscow, once the aforementioned delegation of authority has been received from USAID/Washington, should:

- " Confirm the designation of a senior Project Manager (presumably Dr. Kevin Rushing) for the EPT Project, who is then responsible for the overall management of the policy, technical and financial aspects of this project.
- " Coordinate the operations of the EPA sub-projects with other USAID-funded activities and the programs of other USG agencies in Russia. The NET training project and the CIP program should continue to be looked at as extra budgetary resources for related, though not necessarily core, project purposes. Other USAID projects (e.g., IESC) can often provide follow-up assistance.
- " Coordinate the operations of the EPA sub-projects with other international donors, particularly the World Bank and the WHO, and bilateral donors including the Germans.

4) EPA should:

- " Confirm to its various participating branches the overall coordinating role of OIA for EPA in this project, emphasizing the need for complete reporting of activities so as to inform more fully OIA and USAID regarding the many different activities underway and/or planned.
- " Consider assigning more full-time EPA staff and existing contractors to this project, rather than the numerous part-time units now used, in order to help bring about more efficiency and timeliness.
- " Consider assigning to Moscow as soon as possible, preferably in FY 1995 as called for in the agreed workplan, a full-time EPA project coordinator (funded in part, if necessary, by the project) to facilitate communications within EPA and with USAID and to support decision making in Russia.
- " Assure the extension of the EPA coordinator in Nizhnii Tagil beyond the eleven months now planned and also study the possibility of assigning an American to Volgograd.
- " Because of past problems with EPA's being able to submit timely financial reports to USAID, both agencies should work together to assure that such a system is in place, consistent with sound financial management practices.

5) USAID/Moscow and EPA should:

- " Revive the scheduled meetings as stated in the inter-agency agreements, including other implementing units, donors and Russian counterparts, to review plans and progress to-date and thereby improve the coordination of activities under this project and with other projects.

- " Continue in their joint efforts, taking into careful account the time and budgetary resources left in the project, to structure remaining activities so that they are clearly sustainable and results oriented in leading to the pollution control objectives of this project.
- " Increase efforts to work more collaboratively with one another and also with their Russian counterparts in the development and implementation of all project activities to better assure their relevance to the Russian situation, gain more readily Russian acceptance and increase the chances for replication and sustainability.
- " Working with U.S. contractors and Russian counterparts, better cross-reference the lessons learned from the various activities underway in this and other project activities in order to save project development time and costs and minimize any unnecessary efforts involved in the efficient transfer of technology and introduction of improved environmental management practices.

ANNEXES

- A. Project Descriptions and Site Visits
- B. Evaluation Criteria
- C. Evaluation Scope of Work
- D. Persons Contacted
- E. Map of Western Russia

ANNEX A

Project Descriptions and Site Visits

ANNEX A

PROJECT DESCRIPTIONS AND SITE VISITS

I. VOLGOGRAD - RUSSIAN AIR MANAGEMENT PROGRAM (RAMP)

The Russian Air Management Program (RAMP) is a pilot project in Volgograd to evaluate and implement improvements to their air quality management (AQM) system and develop a plan to incorporate successful elements Russia-wide. According to the FY 1995 USAID/EPA Country Workplan for Russia, EPA has three principal goals for its EPT-funded activities in Russia:

- " Environmental institution-building,
- " Improvements in environmental quality, and
- " Dissemination of successful activities to other areas of Russia.

The program consists of on-going demonstration efforts to analyze and promote technically and economically feasible AQM improvements through improved policy, practice and investment strategies. Expected outcomes of this sub-project are, therefore, methodologies, practices and institutions that contribute to measurable reduction of air pollutants that affect public health. Reducing health risks, through environmental quality improvements, is a long term objective of AQM in the Volgograd region and, via replication, throughout Russia.

To accomplish the stated program goals the following three sets of interrelated activities are simultaneously on-going:

- " Introducing changes into the basic elements of the current air management system in Volgograd, such as monitoring, source testing, emissions inventories, compliance and source surveillance, and strategy development;
- " Source assessment, LC/NC measures, and pollution prevention programs that will reduce air emissions and improve production efficiency at selected enterprises;
- " Training, public outreach, and development of appropriate policies and laws for disseminating successful project results throughout Russia.

During the site visit and information gathering phases of this management evaluation, stated goals, planned activities and mid-point status were examined, and progress toward meeting expected outcomes is noted herein.

A. Air Quality Management

The EPA OAQPS divided its AQM program component, according to its workplan, into three program areas with a total of nine activities. The program areas are: 1) emissions measurement and emissions inventory, 2) compliance and enforcement, and, 3) Volgograd emission

reduction strategy. "In Volgograd, completion of this program will, among other things, support the development of an air pollution control strategy and strengthen environmental enforcement and, at the federal level, serve as the basis for review of emissions factor development", is stated as the AQM programs objective. The attached matrices list planned activities and their current status:

- 1) Emissions measurement and emissions inventory.

Activity 1. Emissions Measurement

The purpose of this activity is to acquire reliable emissions data as the starting point for virtually all analytic procedures and management practices involved in AQM. No actual emissions measuring beyond "initial use of measurement equipment" is indicated in the items listed to accomplish this task. As presented, this activity should yield a test plan that initiates emission measurements from key sources in Volgograd and a training plan for those Russians who will actually conduct testing under the guidance of two program contractors: Radian and the Institute for the Protection of Atmospheric Air (SRI). On site it was learned that actual implementation is dependent on procuring equipment through the CIP. There was no information available on the probable arrival date. An inconsistency exists between the Country Workplan for Russia FY95 (CWP) and the Russian Air Management Program FY95 Workplan supplied by RTP (RTP-WP). Without equipment and equipment use training, it appears inconceivable that this activity can be completed by the CWP date of September, 1995. The RTP-WP lists September, 1996 as the date for finalizing the test plan and test initiation.

If testing does not begin until September, 1996, and output from this testing is to serve as the starting point for virtually all analytic procedures and management practices involved in AQM; assuming a three month test period and, given, that source testing is key to each step in the AQM process; then the AQM process can not begin before 1997, the last year of the project, in theory. In practice, development of the test plan is well underway, and technical and quality assurance support has been arranged, thereby demonstrating that managerial and administrative implementation has begun.

Activity 2. Improvement of the air emissions inventory

Expected outcomes of this activity are correlatable U.S. and Russian emissions inventory data, demonstration and training on International methods, and standard guidance for emissions inventories throughout Russia. No additional information relating to this activity was obtained during the site visit.

- 2) Compliance and enforcement

EPA's approach to help strengthen Russia's compliance and enforcement system is to work with Volgograd counterparts to reinforce the basic elements of the enforcement and compliance system, with some specific activities targeted on measures that will be of "immediate and practical benefit", such as visible emissions evaluation (VEE). The CWP states, "the Russian enforcement and compliance system lacks teeth: plants often ignore permit conditions, and especially in current economic conditions, rarely attempt to come into full and rapid compliance".

Activity 3. Training and certification in visible emissions evaluation (VEE)

Six Russian trainees were instructed on a technique for monitoring visible emissions from stationary sources discharging to the atmosphere during a training course held at RTP. A subsequent training activity was conducted at Volgograd Motor Works. The VEE method for monitoring opacity, the degree to which emissions reduce the transmission of light and obscure the view of an object in the background, is used by enterprise inspectors as an enforcement tool. During the site visit, those using the method claim improved enforcement efficiency and potential budgetary savings by reducing laboratory test requests and costs. On the federal level, the Ministry is submitting proposed "clean air" legislation using the language of the U.S. Code of Federal Regulations (CFR) - "Method 9-Visual Determination of the Opacity of Emissions from Stationary Sources" to the Duma (lower house of Parliament) that will allow, upon becoming law, the use of VEE methods all over Russia.

Five of the six original trainees were certified at the time of the team visit. (It is necessary to be re-certified every six-months under Method Nine.) This program component, a potential "train the trainer" activity, though useful through its assistance to VESA in its enforcement activities, is dependent on passage of supporting legislation, and delivery of smoke-making machines, funded under the CIP. The Technical Director of Volgograd Motor Works, a VEE certified trainee, reported with pride that his facility is the chosen site for future training in this method.

A legal task force of Russian and American environmental law experts, and Russian representatives from the Academy of Law and Science, legal NGOs, and a sitting judge, is researching application of existing federal laws and development of new laws where needed for program assistance. Providing input from the policy perspective is an HIID policy representative. (See Activity 8.)

Activity 4. Recommendations for strengthening inspections, permitting and compliance program

Item three of these activities, though scheduled for an October, 1995 completion date, is substantially complete. Source assessments and emissions inventories were conducted between May, 1993 and October, 1994 for nine enterprises including: Red October Steel Mill, Silica Building Materials and the Aluminum plant. (See Activity 9).

3) Volgograd Emission Reduction Strategy.

Activity 5. Ranking pollutants by toxicity, potential for exposure and control availability

This activity should introduce practical, incremental changes in the Volgograd AQM system to help streamline management practices and focus attention on priority pollutants, health risks to the population, and the cost-effectiveness of various control measures. A full-scale AQM intermediate and long-term strategy for Volgograd is the expected outcome. Since source assessments and emissions inventories have been conducted for nine "key" enterprises, it would appear that processes and pollutants for the near-term strategy were previously chosen, or audited enterprises were chosen by different criteria. Although complete, this activity is scheduled to end in

either May, 1995-CWP or October, 1995-RTP-WP. (See Activity 6.)

Activity 6. Source Assessments and Cost Estimates

The EPA/USAID IAA's program description for RAMP lists "source assessment, LC/NC measures, and pollution prevention programs that will reduce air emissions and improve production efficiency at selected enterprises as one of three interrelated activities to review and reform Russia's air management system, initially in Volgograd. Program objective 5 states "RAMP will help introduce immediate improvements to the Volgograd air management system by ...identifying and assisting in the implementation of low-cost emission reduction measures at ten enterprises...." Thus far, nine enterprises have been audited, and a prepared draft is circulating for comment, in Russia, while cost estimates for LC/NC implementation in Volgograd are gathered. Three inventoried factories - Red October Steel Mill, the Aluminum Reduction Plant, and the Silicate Building Materials Plant - were chosen, from the nine, for assistance implementing recommended measures. At least one project document refers to the chosen enterprises as the three major air pollution sources within the project area of northern Volgograd.

The employee owned Silicate Building Materials Plant was visited during the Volgograd site visit. Located on 72 hectares (approximately 178 acres) and employing 1200, this enterprise dates back to 1928 with operation and production of major building materials beginning in 1950. This facility manufactures cement/sand bricks and blocks, reinforced slabs for wall or floor panels and the lime for using the cementing agent, among other products. Emission estimates and rates, by process, were audited/estimated and LC/NC methods for reducing emissions and control technology choices were developed and presented.

Of major concern in this facility was emission of particulate matter, carbon monoxide and nitrogen oxides. Based on the production rate of 80 tons per day per furnace, the eight process furnaces had uncontrolled emissions of 934.4 Mt/year (1,028 tons/year). Existing control equipment was found to be operating at approximately 15 percent efficiency, releasing 794 Mt/yr of particulate matter from this source. EPA/SAIC suggested over thirty LC/NC recommendations for controls and modification of processes.

Sixty percent of the offered recommendations were well received and implemented, ranging from frequent wetting of raw limestone for the raw storage area to designing and installing a water spray tower to prevent discharge to the atmosphere of up to 10 percent of the calcium oxide conveyed to the production silos. Of the three control options presented for controlling emissions of calcium oxide, the least expensive, the water spray tower, simple to design, fabricate and install using plant personnel, was adopted. Calcium oxide recovered using the water spray tower reduced operating cost and provided a return on the investment after only six weeks. This LC/NC measure reduced plant emissions by approximately 190 Mt/yr.

Another measure, recommended to contain high quantities of carbon monoxide and dust thereby preventing their emission to the atmosphere during production of quick lime was also adopted by the enterprise. When calcining limestone at 1300 degrees centigrade in seven vertical calciners, the release of high carbon monoxide levels from the stack is indicative of inefficient combustion. (The absence of excess oxygen caused incomplete combustion of the natural gas

thereby generating carbon monoxide rather than carbon dioxide. The simple and straight forward correction steps, requiring a minimum capital expense, both increased energy efficiency of the calciners, reducing the quantity of natural gas required, and provided returns on the investment. The facility's Technical Director credits LC/NC measures for reducing emissions by 40 percent.

Outcomes of the Aluminum Plant source assessment and emissions inventory include recommendations for reducing sulfur dioxide, volatile organic carbons, alumina, carbon monoxide, hydrogen fluoride, etc., emissions, totaling 30,370 MT in 1993, using LC/NC measures. The Volgograd Red October Steel Mill's source assessment and emission inventory revealed emissions of approximately 50 tons/yr of particulate matter in addition to sulfur dioxide, nitrogen dioxide and carbon monoxide. The status of LC/NC implementation was not verified via a site visit. Potential emission reductions from using LC/NC recommendations at these two plants could produce results similar to Silica Brick.

Item two of this activity requires a guideline to encourage extensive use of LC/NC measures throughout Russia. A nationally applicable guidance manual for identifying LC/NC emissions reduction opportunities in significant source categories is scheduled for completion by September, 1995. The manual will identify sources of pollution (general processes and specific source categories), make recommendations for addressing problems, present case studies of actual problems solved using LC/NC control measures such as in Volgograd, and discuss the environmental and economic benefits of reducing pollution. This document is the product of program discussions between EPA and Russian partners held in March, 1995.

Activity 7. Advancing understanding and use of sound economic principles

This activity is viewed, according to EPA/RTP (OAQPS), as an opportunity to document the case of an economically and environmentally successful restructuring of a privatized enterprise in Volgograd. (Negotiations are underway with HIID as potential contractor to perform this activity.)

Activity 8. Legal support to Volgograd pilot activities and programs all over Russia

Legal support provided by Activity 6 consist of efforts to ensure the consistency of RAMP activities with Russian law, especially the 1991 Russian environmental law, and all relevant air legislation and regulations, according to the CWP. The Legal Task Force's activities, as stated during an office visit in Moscow and under Activity 8 in the workplan, are structured for assistance in the coordination of policy and institutional issues, through legislation necessary for implementing an improved AQM program. The Task Forces's role in using a U.S. emissions monitoring program as the prototype for proposed federal regulations, and development of proposed legislative rulings supporting VEE use, is unclear.

Activity 9. Near-term LC/NC pollution prevention strategy and long-term reduction strategy in Volgograd

Priorities for implementing LC/NC measures at selected enterprises are reducing and preventing pollution, increasing production efficiency, and providing substantial benefits to

Volgograd, per CWP. Process selection, technologies, and financing decisions focused on reducing emissions within and near the sanitary protection zones of three enterprises are the activity's objectives. Action steps were planned to afford the greatest reduction in health risk to nearby residents of Volgograd in a cost effective manner, according to CWP. (See Activity 6).

B. Air Quality Management Programs for Russia

As stated in the EPA/USAID IAA, RAMP will disseminate successful elements of the Volgograd pilot project throughout Russia by working with MEPNR and key institutes developing recommendations for a federal AQM program. Changes in federal laws, regulations, and policies to facilitate replication of activities in other oblasts and cities adopting new approaches to AQM are expected outcomes. To meet this objective, EPA has developed five activities:

Activity 10. Comprehensive summer air quality monitoring study in Volgograd

This is the same study identified under Activity 1. The RTP-WP's expected output is a report in March, 1997 on the Summer, 1996 study and providence on the air characterization study.

Activity 11. Integrate Russian professionals and air quality managers into international forums, publications and processes

"The process and products of this activity provides "cutting edge" AQM papers for use at training centers and development of an air quality network", according to EPA/RTP.

Activity 12. Improve access to understanding of Russia's air quality data

The first item in this activity was presented as a module in the training course conducted at EPA/RTP.

Activity 13. Use the RAMP results in Volgograd to influence national level air policy, practices and laws

See Activity 8.

Activity 14. Improve and expand Russian emission factors and estimation guidelines

These activities are addressed elsewhere.

Activity 15. Technology-based air emission standards

C. Project Dissemination and Public Outreach

Two activities are planned for disseminating project information and public outreach, training and public participation.

Activity 16. Environmental training center in Volgograd

In addition to VEE training at the Volgograd Motor Works and equipment use training in St. Petersburg, (See Activity 3), ISC has an on-site contractor establishing an environmental training center in Volgograd. Also located in Volgograd is a newly established Volgograd Center of Russian Ecological Academy. The VESA partner recommends locating the new training center at the Academy. Another potential training activity in RAMP, measuring emissions from key sources in Volgograd, is awaiting arrival of monitoring equipment (see Activities 1 and 10). Although equipment usage and maintenance training does not appear as a separate activity under the EPA workplan, it implies that enterprise audits are conducted as on-the-job training exercises.

Activity 17

Actions under this activity are defined under ISC's work assignment for Volgograd. Given that ISC was the contractor that established the center in Ekaterinburg, this activity is an example of how lessons learned in one Russian location can be used to the advantage of another.

CONCLUSIONS

Progress achieved toward meeting the EPA/Russian designed program's objectives is the result of EPA, MEPNR and VESA expertise, plus that of USAID, and the following contractors: SAIC, CH2M Hill, Radian, ISC (a new entrant) and six Russian institutes. Conclusions presented below are grouped according to the CWP's three principal goals for its EPT funded activities in Russia.

Environmental Institution Building

VEE training and usage, newly proposed "clean air" legislation and the role of Russian institutes are examples of environmental institution building efforts undertaken during RAMP implementation. This program proceeds with close cooperation between EPA/EPA contractors, VESA, and the local, oblast and federal government structure. Accomplishing slated activities required forming productive working relationships with local, oblast and federal environmental representatives, a must for effecting change. The atmosphere of cooperation has proven successful. On the implementation side, vital working relationships are evident in the enthusiasm with which new methods were learned and incorporated into existing practices. It is through on-the-job relationships that experience and technique are transferred.

The final location decision for the training center has not been made. The VESA member responsible for education thinks a working relationship with the newly establish Academy is the desired alternative. A management building exercise, an exploration of economies of scale from an

association weighted against the level of independence and long range goals planned for the center could be a valuable input to the final decision. Independent thought and the execution of business decision making activities are inherent to democratization. This program does boast the advantages of design flexibility.

Improvements in Environmental Quality

Recommendations implemented by Silica Brick show the potential effectiveness of LC/NC measures for both pollution prevention, and sound economic practices, and, that environmental improvements and sound economic management are not mutually exclusive. Silica Brick's success and the potential for greater pollution reduction from Red October Steel Mill and the Aluminum Plant, are indicative of environmental improvements this project can provide.

Dissemination to Other Areas of Russia

Basic impediments to the widespread application of LC/NC measures are: a) the lack of organized information on these types of measures; and b) lack of a consistent way to ensure their implementation, where appropriate. The pending technical support reference manual for use all over Russia to identify significant source categories and proven U.S. and international control techniques, is a valuable tool. Providing a reference document for use by all Russian enterprises in assessing their emissions reduction potential using the experiences of Volgograd participants, is a "win-win" outcome of cooperation. This document is a potential means for effecting change all over Russia through replication of project successes.

A continuing dialogue with the remaining six inventoried enterprises could yield opportunities for forming linkages with U.S. businesses. That the project workplan lacks activities leading to coordination with other USG agencies operating in Russia for identifying possible project linkages, limits "promotion of investment strategies". Providing equipment necessary for training and operation, if rules proposed for federal approval dictates the need for such monitoring, could prove a tremendous boost to U.S./Russian technical assistance and, ultimately, technology transfer.

The training center planned for Volgograd is a positive step toward building the strategy for VEE certification valid all over Russia. This center will facilitate training trainers from other regions of Russia and serve, perhaps, as a prototype for other VEE training centers. Delineated logistical steps for implementing Federation wide dispersal of VEE and other AQM methodologies can assist intermediate and long-range management planning and strengthening while focusing replication toward manageable, distinct activities.

Finally, RAMP operates extensively through conference calls between the U.S. and Volgograd and frequent site visits. Each workplan activity has an EPA employee and contractor partner team assigned to oversee its completion. This operating mode, though successful thus far in the program, may become even more cumbersome as the program matures and funds become more focused. Although an ISC representative is currently in residence in Volgograd to establish the training center, this representative's functions do not include coordination of demonstration and technical activities.

There are at least six discrepancies in the workplan for this program's planned activities between the CWP and RTP-WP. Information variances between the implementers and managers of the same project are endemic of insufficient coordination and communication within EPA.

STATUS OF ACTIVITIES FOR VOLGOGRAD - RAMP

Activity 1. Measure emissions from key sources in Volgograd (Source Testing). (Wayne)			
Task	End	Output	Status
Travel to Volgograd and St. Petersburg to complete preliminary test plan for source test protocol at key enterprises and plan training in use of new air pollution monitoring and measurement equipment.	May 95	Preliminary test plan	Needs equipment
Travel to Volgograd and St. Petersburg to observe initial use of new measurement equipment.	Aug. 95	None	Future
Finalize test plan and initiate testing; provide continuing technical and quality assurance support as Volgograd uses test equipment	Oct. 95	Test plan	Future
Activity 2. Improve the air emissions inventory used in Volgograd			
Task	End	Output	Status
Provide training for 24 Russian air specialist at RTP in methods and techniques for developing emissions inventories.	May 95	Trained specialists	Completed
Travel to Volgograd and St. Petersburg (Institute for the Protection of Atmospheric Air) to provide guidance on emission estimation techniques, to begin developing an up-to-date emissions inventory, obtain available emissions data, and begin gathering measured emissions data for key Volgograd enterprises	Jun. 95	Emissions inventory	On-going
Complete point and area source emissions inventory for key sources in the northern part of Volgograd using U.S. inventory methods.	Oct. 95	Emissions inventory	On-going
Begin developing standard guidance for emissions inventories, in cooperation with the Institute for Protection of Atmospheric Air.	Oct. 95	Emissions inventory	On-going

Activity 3. Provide training and certification in visible emissions (VEE)			
Task	End	Output	Status
Travel by Russians to RTP for training and certification of six VEE inspectors. (Training will repeat approx. every six months.)	Feb. 95	Trainees	Completed
Develop strategy for establishing a VEE certification program for Russia	Sep. 95	Report	On-going
Activity 4. Provide recommendations for strengthening Volgograd's inspections, permitting and compliance program			
Task	End	Output	Status
Develop report documenting strengths and weaknesses of environmental enforcement in Volgograd; recommend changes in Volgograd's enforcement and compliance program.	May 95	Report	Completed
Help evaluate, pilot and establish VEE and other enforceable provisions in environmental permits (passports) for three large enterprises in Volgograd.	May 95	Report	On-going
Report on baseline VEE and process conditions and determine possible improvements in visible emissions from three Volgograd sources.	Oct. 95	Report	On-going
Activity 5. Rank Volgograd's pollutants by toxicity, potential for exposure, and control availability			
Task	End	Output	Status
Travel to Volgograd to examine source and pollutant priorities, to consider the exposure potential of sources and toxicity if pollutants emitted, select key processes and pollutants for near term strategy	May 95	Report	On-going
Commission report to evaluate and document localized health problems.	Jul. 95	Report	

Activity 6. Complete source assessments and cost estimates for key Volgograd enterprises			
Task	End	Output	Status
Travel to Volgograd to obtain draft cost estimates for LC/NC measures for ten Volgograd enterprises and develop plan for partial implementation of LC/NC measures.	May 95	Report	Completed
Begin development of guidelines to encourage extensive use of LC/NC measures as an expedient emission reduction tool throughout Russia.	Sep. 95	Manual	On-going
Activity 7. Advance the understanding and use of sound economic principles in air quality management			
Task	End	Output	Status
Begin retrospective case study of an environmentally and economically successful enterprise restructuring (furniture factory)	Jul. 95	Preliminary draft	On-going
Activity 8. Provide legal support to Volgograd pilot activities and Russia wide programs			
Task	End	Output	Status
Travel to Moscow for meeting of the legal task force to discuss the legal implications of RAMP activities in Volgograd.	Feb. 95	Report	On-going
Activity 9. Develop near-term LC/NC pollution prevention strategy and long-term risk-based emission reduction strategy in Volgograd			
Task	End	Output	Status
Integrate results of Activities 1-8 (Develop implementation and long-term strategy, RTP-WP)	n/a	Uncertain	On-going

Activity 10. Carry out comprehensive summer air quality monitoring study in Volgograd			
Task	End	Output	Status
Travel to RTP to work with specialists on design of summer ambient monitoring study	Feb. 95	Report	Completed
Travel to Volgograd to finalize summer study design and sampling protocols	May 95	Report	On hold
Deploy and use U.S. made air quality monitoring equipment in locations conditionally designated for permanent monitoring stations	Aug. 95	Data	On hold
Activity 11. Integrate Russian professionals and air quality managers into international forums, publications and processes			
Task	End	Output	Status
Initiate Russian participation in WHO's Global Environmental Monitoring System (GEMS) for publication of Russian air quality data in GEMS reports.	May 95	Report	On-going
Include Russian air emissions data in international publications by establishing a routine process within MEPNR for including Russian summary data on air emissions in EPA's annual report on air emissions and trends.	Oct. 95	EPA annual report	On-going
Travel to Moscow, St. Petersburg and Volgograd to increase Russia's participation in WHO European health meetings	n/a	Report	On-going

Activity 12. Improve access to and understanding of Russia's air quality data			
Task	End	Output	Status
Pilot the use of a Pollutant Standards Index in Volgograd, to improve the public availability of Russian air quality data. compliance program.	May 95	Report	On-going
Commission report on the status and nature of Russia's air monitoring data.	n/a	Report	Unknown
Activity 13. Use the RAMP results in Volgograd to influence national level air policy, practices and laws			
Task	End	Output	Status
Travel to Moscow for meeting of legal task force to discuss implications of Volgograd experience for national laws and policies.	Jun 95	Report	On-going
Activity 14. Improve and expand Russian emission factors and estimation guidelines			
Task	End	Output	Status
Train 24 air specialist in methods and techniques for estimating emissions and developing emissions factors.	Feb. 95	Trained specialists	Completed
Travel to Volgograd and St. Petersburg (Main Geophysical Observatory and Institute for the Protection of Atmospheric Air) to check progress by Russians on developing emission factors.	Jun. 95	Report	On-going
Commissioned report on improving Russian system for estimating emissions using emission values (factors) for particles, gases, and volatile organic compounds due.	Oct. 95	Report	On-going
Begin developing standard guidance for a countrywide system of emissions factors in cooperation with the Institute for the Protection of Atmospheric Air.	Oct. 95	Report	On-going
Activity 15. Develop technology-based air emissions standards			

Task	End	Output	Status
Travel to St. Petersburg and Volgograd to initiate work on the development of technology-based air emissions standards.	n/a	Report SAIC & ISC	On-going
Activity 16. Establish environmental training center in Volgograd			
Task	End	Output	Status
Hold initial discussions with Volgograd officials and air specialists in U.S. on establishing environmental training center in Volgograd and deliver first course on environmental enforcement.	Feb. 95	Report	Completed
Travel to Volgograd for discussions and completion of initial agreements.	Mar. 95	Report	Completed
Develop first year center workplan.	Apr. 95	Workplan	On-going
Travel to Volgograd to review progress, assess operations, and reach final agreement with Volgograd project participants.	May 95	Report	On-going
File formal registration of center.	Jun. 95	Registration	Future
Organize test delivery of environmental management course.	Jun. 95	Course agenda	On-going
Open Volgograd center.	Oct. 95	Center	Future
Deliver second environmental course.	Oct. 95	Course	Future

Activity 17. Increase public participation in environmental decision-making in Volgograd			
Task	End	Output	Status
Organize environmental priority-setting citizens committee.	Jul. 95	Committee	Planning
Public forum on air quality monitoring site locations.	May 95	Report	Planning
Train citizen's committee members in comparative risk, risk assessment, and air monitoring.	Sep. 95	Trained committee members	Planning
Travel to Volgograd to review progress on public participation programs.	Jun. 95	Work assignment	Planning
Travel to Volgograd to design and develop sub-grant to Volgograd NGOs for publication of environmental newsletters.	Sep. 95	Report	Planning

II. MOSCOW DRINKING WATER SUB-PROJECT

The general objective of the Moscow drinking water sub-project is to improve drinking water quality and to reduce the health risks from contaminated drinking water in the city of Moscow, by introducing new approaches to planning and managing sources and supplies of drinking water in the Moscow region. This objective will be addressed through two pilot components:

- the Istra River Basin small watershed management;
- the improved discharge permitting, compliance and enforcement.

Besides these, the sub-project includes the following support activities, which are intended to solve other problems related to the Moscow drinking water supply:

- assistance to the water quality laboratories;
- assistance for field water quality monitoring;
- environmental law assistance.

A. Istra River Basin Small Watershed Management Component

1. Scope and objectives

According to the EPA/USAID workplan, the major goal of the sub-project is to introduce and demonstrate technology and management practices to deal with non-point water pollution generated by agricultural activities or by settlements in the rural area. These practices may, if broadly implemented, improve the overall environmental quality and, more specifically, drinking water quality in the Istra Basin and in Moscow.

The specific objectives of the Istra component are to:

- introduce improved practices to reduce ground and surface water pollution in the Istra area, including significant reduction in spills and overflows from waste holding facilities from a minimum of two sites in the Istra district;
- develop a comprehensive environmental management strategy for the Istra area;
- support the adoption of environmentally sound water management and agricultural development policies, practices and institutions;
- cooperate with local, oblast and federal organizations to ensure that the successful results of the Istra project can be generalized to other watersheds and other environmental management problems in Russia.

2. Component Management

This component is being implemented by EPA's Region 7 (Kansas City) as task manager for a cooperative agreement with the Center for Agricultural and Rural Development (CARD) of Iowa State University, Ames, Iowa. A Project Management Office has been established at CARD, which is staffed by a principal investigator, a project manager and an assistant project manager. In addition, CARD secures, as needed, the assistance of technical experts in scientific areas related to the project.

On the Russian side, project management is realized by a project manager, two assistant project managers and a staff of Russian specialists recruited through institutional sub-agreements made with the following cooperating organizations:

- Water Design Institute
- Agrarian Institute
- Moscow State University for Geodesy and Cartography (MSUGC)
- Nature Protection Research Institute
- International Academy of Sciences

Besides these lead organizations, the project also involves various Russian specialists as individuals, without links to the institutes where they are working. The agreements with most of the Russian counterparts have been signed, though some of them are still in the process of being negotiated. However, the Russians have started working on the project even before the contracts have been finalized.

3. Activities

The EPA/USAID workplan for the Istra River Basin small watershed management component of the Moscow drinking water sub-project includes the activities presented in this annex. The present status of these activities is also indicated. The EPA/USAID workplan has been prepared for FY 1995 and, consequently, the activities for the following years are presented in less detail.

The CARD workplan, prepared by Iowa State University, is more detailed than the project's workplan and includes some tasks not included in the EPA/USAID workplan. It also contains proposals submitted by Russian collaborators, which to a certain extent modify the design of the project. Such discrepancies will be highlighted in the presentations of the activities to which they refer.

a. Baseline surveys and data collection and analysis

i. The EPA/USAID workplan includes various tasks related to baseline surveys as well as data collection and analysis. These tasks have been defined in various proposals submitted by the Russian counterpart and have been accepted by CARD, the appropriate cooperation agreements being signed. Part of these exercises have been completed or are on-going. Most of these tasks are carried out by Russian teams.

ii. The EPA/USAID workplan includes a task for updating the environmental database. This has been replaced in the CARD workplan by the updating of the Istra River Basin master plan. Discussions held with the evaluation team have indicated that the terminology is incorrect, and that the "master plan" is actually an updating of the basic data. The CARD workplan also indicates that the updating will be done, following the methodology used in the previous master plan, which was prepared by the Russians around 1990. This eliminates the contribution of U.S. experts in this exercise. Traditionally, Russian activities in river basin planning are more detailed than the corresponding American activities. This is also obvious from the proposal for the task prepared by the Russians, which includes extensive mathematical modelling for groundwater. The proposed studies also include such exercises as the preparation of a map of the radiation load in the basin area, which is in no way related to the pollution due to agricultural sources. It would be advisable to associate U.S. experts to this exercise and to make the Russians aware of the U.S. approach. As the Russian approach is generally more expensive, taking into account the increased manpower required, simplifying the procedures and focusing on the targets may result in a reduction in the costs of this and of future surveys, which will enhance the replicability of the project.

iii. The proposed database also includes the preparation of a significant number of maps, which would require the use of appropriate computer graphics. The EPA/USAID workplan indicates that a GIS system is necessary. The evaluation team considers that this provision of the workplan is correct. The use of computer graphics for the preparation of maps is still less common in Russia than in the U.S. The need for improving this situation and for using GIS software for the project has been identified, and is included in the description of the update for the Istra River Master Plan. GIS techniques will be necessary also for the complex ecological assessment of the present environmental conditions in the Istra River Basin, which involves the preparation of a significant number of maps. However, no steps have yet been taken to select software or to procure it.

GIS software requires special computer hardware and might not be usable on the computers of the Russian institutes involved in the projects. Different peripheral equipment (digitizers, plotters, etc.) may also be necessary. The budgetary provision of \$6,000 for GIS computer services is definitely underestimated and will not even cover the cost of the software for a GIS such as Arc-Info. Extensive training for the use of GIS is also necessary. Finally, the cooperation of U.S. experts in the preparation of the maps would be advisable. The software and corresponding equipment could be procured under the CIP arrangements, but, taking into account the length of the procurement process, the specifications will have to be prepared as soon as possible. There is no evidence that such steps have been taken yet. During discussions with the Russian counterparts, they have also indicated that the procurement and training on GIS techniques is essential for the completion of the project.

iv. The tasks related to the legal, regulatory and administrative review include a compilation of the existing regulations for water and environment. In the second phase, which is on-going, the research is being oriented towards regulations related to agriculture, reorganization of collective farms and state farms into new forms of agricultural businesses, the formation of a new economic mechanism of land tenure and other issues in the development and intensification of agrarian reform. These activities are carried out under a contract with the Agrarian Institute.

The CARD workplan indicates that the information will help support the Legal Task Force and the overall demonstration work, though the link with the demonstration work is not clear. However, this workplan includes only the discussion of the preliminary report with the Istra Raion Administration as well as with scientists and professionals in the field of law, environment and agricultural economics, with no mention of any involvement of the Legal Task Force. In a recent letter from EPA to the Water Sub-Committee of the Task Force, it is mentioned that both English and Russian versions of the research completed by the Agrarian Institute are available. However, the letter raises the question if CARD wants the report to be reviewed and evaluated by the Task Force. If EPA is leading this component, this review and evaluation should be decided by EPA. Such reviews by the Task Force should be built into the project and not done at the request of CARD.

Besides the activities related to legal review, the CARD workplan also includes activities such as the creation of a legal base for continuing education in ecology. The stated output of this activity is a plan for the proposal and recommendations for implementation of ecological rights of citizens and social institutions. Such a plan is beyond the immediate objective of the sub-project.

b. Field demonstrations of animal technology and management methods

i. During the field visits, the Russian counterparts indicated that some of the contracts with the cooperating Russian organizations have not yet been signed and negotiations are still underway with some of these organizations, such as the Agrarian Research Institute. Subsequent discussions with representatives from CARD and EPA revealed that these were mainly due to administrative difficulties. While the Russian institutes involved have stated that they are working on the activities assigned to them, it is still necessary to solve such management problems operatively.

ii. Most of the other activities of the sub-project are on schedule. The surveys and data collection activities have either been completed or are on-going. Agreements have been signed with local farmers for small farm management demonstrations and progress in the field appears to be satisfactory.

The Russian counterparts indicated that, during the last field visit of the CARD team, the U.S. experts for these methods were still reconsidering the technical solutions which were to be implemented during the experiment and were still making some changes in the technical plans. While, at the field level, technical discussions with the Russian experts on such issues may be understood, at higher management levels, either in the oblast or in the Ministry, these additional delays seem less acceptable and may reinforce the impression that the sub-project is not producing results.

iii. The CARD workplan includes the following activities which are not found in the EPA/USAID workplan:

" Analysis of the solid waste problem in the dacha settlements and villages of the Istra district and identification as well as demonstration of improved technology for handling and disposing of solid waste.

- " Identification and testing of technologies and management methods to determine levels of contamination of wells and to ascertain the most effective techniques that may be applied to improve water quality in these wells.
- " Identification of sources of contamination of ground and surface water in small communities due to household waste disposal and demonstration of alternative systems for household waste disposal.

These activities are necessary to the component. There is no scope in carrying out the surveys for the dacha area, as presented in the EPA/USAID workplan, if there are no follow-up activities. However, while linked to the general objectives of the project, they are not directly related to any of the specific objectives indicated in the EPA/USAID workplan.

c. Development of a program of public outreach and education

i. The detailed workplans for this activity, included as such in the CARD workplan, have been prepared by two Russian teams, one from the International Academy of Sciences and the other from the Moscow State University for Geodesy and Cartography (MSUGC). Corresponding agreements have been signed between the teams of Russian experts and CARD.

The progress reports of CARD indicate that there have been discussions with the Russians on this activity. However, no terms of reference for these tasks have been drafted and, following these discussions, the proposals appear to have been prepared exclusively by the Russian counterpart. Neither the agreements nor the CARD workplan mention any U.S. input during the implementation. The reports are drafted exclusively by the Russians, though, according to discussions with EPA and CARD, there will be a final review of the outputs. This approach may be appropriate for technical cooperation and exchange programs but is less suitable for technical assistance projects, as in the present case, because it minimizes U.S. inputs and the transfer of these techniques to Russia.

ii. The Russians seem to be unaware of the U.S. approach to the tasks of this activity and, therefore, the proposals are mostly based on their own experience. The teacher exchanges between schools in the Istra Region and Ames, Iowa, though included in the workplan, did not take place. Information received from EPA's Region 7, Kansas City, indicates that when the workplan was originally developed, "teacher exchanges" to share and develop curricula were envisaged. However, both the CARD and the EPA/USAID workplans, while maintaining the idea of a teacher exchange, include the provision that the curricula will be developed by the MSUGC. Therefore, the exchange, even if it takes place at a later date, can have no influence on the development of the curricula. There is no mention in the workplans of any other visits of Russians to the United States.

iii. The approach in the Russian proposals is very theoretical and includes more research activities and lectures than practical work, which is not surprising, taking into account the profile of both cooperating institutions. Many parts of these proposals, which have been accepted by CARD and for which agreements have been signed, appear to have been designed as independent studies, which are only loosely related to the objectives of the component. There appears to have been

insufficient input from CARD in the review of the design of the proposals and also an insufficient awareness of the ideological implications of some of the proposals, especially those presented by MSUGC. As there is also extremely little U.S. input in many of these research and education activities, the implementation of these tasks will not ensure any changes in the system and create an awareness of U.S. practices.

iv. The activities carried out until now cover mostly compilation of basic information. This data collection will be continued. However, the data collection effort appears excessive because it is doubtful that all the data are required to meet the objectives of the component and some of the planned data collection activity is redundant. There is no justification under this activity for collecting data and creating a separate database on the pollution sources and on the health conditions of the population. Such a database is part of the monitoring system and should be made accessible to the people involved in the education program.

v. Part of the planned tasks appear to be significantly beyond the objectives of the component. This is the case mainly with the proposed task of formulating structural elements of an ecological educational zone which includes activities such as the creation of a model "school of the future" for continuing in-depth ecological education and training of specialists. These activities should be scaled down and limited to the stated objectives of the component.

vi. The extensive educational program significantly exceeds the objectives of the sub-project. Its implementation would require the cooperation of the Ministry of Education or its regional or local offices. The workplan makes no mention of their association to the component. The evaluation team strongly feels that this task should be scaled down to some experimental courses and not aim at studying and implementing radical changes in the Russian educational system. The detailed workplan also mentions the creation of a center for ecological training and information, which is not indicated as an output in the CARD and EPA/USAID workplans. As similar centers are being set up in Ekaterinburg and Volgograd, it is felt that the expertise of such centers has been transferred to Russia and, if needed, this experience can be replicated by the Russians, without foreign technical assistance.

vii. A course outline for environmental training in high schools has been developed by the MSUGC. There appears to be a communication gap between the U.S. and Russian teams working on such activities, due to the basic approach to environmental activities. The U.S. approach is more "hands on", is designed towards acquiring skills and is oriented towards environmental protection. The Russian approach is more theoretical, is aimed at imparting knowledge and is oriented towards ecology. It might be noted that while in English "environmental" and "ecological" are two different concepts, they are usually both translated into Russian by "ecological", so that the Russians are frequently not aware of the differences in the original texts in English. As a result, the outline prepared by MSUGC is excessively theoretical and also has a disturbing dialectical materialistic touch. The outline does definitely not meet the objectives of environmental awareness building.

Both EPA and CARD have indicated that the materials developed by the Russians would be subject to a peer review. No steps in this respect appear to have yet been taken. However, the staff of the MSUGC did not seem to be aware of any such steps and none are mentioned in the status reports of the sub-project. The prepared outline has been printed, without such a review taking

place, and has been circulated to school administrators, teachers and various official organizations, and steps have been taken for preparing for the writing and publication of tutorial and instructional textbooks for teachers and trainees. The progress report of the sub-project indicates that all evaluations have been positive and does not indicate that U.S. intervention or review is necessary. This creates the risk that the review by EPA and CARD will take place after the textbooks have been published.

vii. The assistance to environmental NGOs in the Istra region has been designed by MSUGC. In the proposal, which has been incorporated in the CARD workplan, the activities related to the NGOs have been limited to public education programs. The MSUGC proposal still has a strong flavor of the former Soviet top-to-bottom approach. The main effort is directed at educating various groups involved and there is practically no activity in training these groups in various forms of active participation in the decision making process. This should be viewed in the context that at least some Russian officials still view NGOs as "anti-government organizations" and try to limit their involvement to minor tasks related to cleaning up the communities, planting trees, etc. This does not meet the scope of this activity, which in the EPA/USAID workplan is defined as strengthening local NGO management and structure. There are no indications of U.S. input into these activities. NGOs are relatively new to Russia and there is not very much experience on how such organizations have to work. There are no indications that MSUGC has any experience in working with environmental NGOs and it is not clear why it has been selected for this task. Support should be provided to NGOs not on environmental issues, but on how NGOs work, how they can contribute to identifying issues and how they could participate in the decision process. The experience gained in Nizhnii Tagil by working with the NGOs and the type of assistance provided by ISC would be useful companions in this regard.

viii. There is no justification presented for the equipment which is to be provided to the organizations involved in the public outreach and education activity. As there is little equipment provided for this activity, this concern is of minor importance. However, it is difficult to understand why the provision is for the procurement of Mackintosh computers when the other computers of the project use IBM compatible PCs. This provision will make the transfer of the data to other projects more difficult. The separate Russian proposals should have been reviewed by CARD, to ensure that such incompatibilities are eliminated.

d. Development of a program for comprehensive water quality monitoring

i. Only preliminary work has started on this activity. The only comments which can be made are, therefore, related to the provisions of the workplans. This task will be implemented by the Russian Water Design Institute. However, no proposal has yet been presented. The extent of the U.S. assistance to this task is also not presented in detail.

ii. In discussions with the Russian counterparts they indicated to the evaluation team the need for additional assistance for the following:

- determination of benzopyrene in natural waters;
- control of organoleptic characteristics of drinking water.

iii. The development of a program for a comprehensive water quality monitoring is approached differently in the EPA/USAID and the CARD workplans. The first two tasks are related to the monitoring of the results of the demonstrated technologies and management methods for non-point and point agricultural pollution. The CARD workplan aims at developing an integrated chemical, physical and biological monitoring system applicable to small rivers, to test the system through a monitoring program on the Little Istra and/or Maglusha River and to develop general environmental quality models for the rivers. The EPA/USAID workplan is more ambitious and covers the entire Istra, Maglusha and Little Istra basins. The more limited approach included in the CARD workplan seems to be more linked to the general objectives of the component. The approach of the EPA, tying this network to the possible bilateral assistance from the German government, which, in principle, should transfer equipment from the Elbe basin to the Oka-Moscow basin, is much more ambitious and goes significantly beyond the objectives of the component.

iv. The introduction of new approaches to planning and managing water resources is indicated as one of the general objectives of the component. For the Istra component, the specific objective outlined in the workplan is the development of a comprehensive environmental management strategy for the Istra area. There are practically no activities included in either workplan to support the achievement of this objective. Such planning activities are especially important for activities related to agriculture, which cover large territories and many non-point pollution sources, as such measures are effective only if they are applied all over the relevant areas of the watershed and not only in pilot demonstration plots. Generalization of the solutions recommended for riparian zones will also imply the delimitation of these zones. The generalization of the results of the project is not only a technical problem, but also implies regulatory, institutional and economic measures, besides the training included in the project.

v. The need for planning activities to achieve the objectives of the component has been identified in the proposals submitted by the Russian collaborators in the CARD workplan. These proposals include such activities as a complex assessment of the present environmental conditions of the Istra River Basin, an analysis of the sanitary conditions of surface water resources in the Istra River Basin and the preparation of proposals for ground water improvement. Fewer planning elements are, however, included for the activities related to riparian buffer strips, though the generalization of the pilot experiments would need such planning. The Russian proposals also include elements of a multi-disciplinary approach, such as the analysis of the infrastructure in the dacha settlements and the study of the system of its financing and the elaboration of a system of financial sources and of curtailment of environmental risk in the functioning of the infrastructure. The U.S. input in these activities is, however, not clear and, as many of the issues raised are related to new economic conditions, the input of U.S. experts can be very important. It is also not clear what kind of training is to be provided to enable the Russian experts to understand the planning techniques used for the preparation of such studies in the context of a market economy.

The concern of the Russians to finalize the results of the pilot projects by the development of an implementation plan or strategy was reiterated during their discussions with the evaluation team. They also stressed the need for U.S. cooperation in this exercise and also indicated the need for more technical assistance on the methodologies for planning issues such as:

- " the determination of the optimal structure of the water pollution prevention measures in the river basin;
- " the evaluation of the measures of pollution control on the territory of the river basin, mainly regarding the dumping of domestic waste, the erosion of pastures, the existing drainage systems and the wastes of rural settlements and live-stock breeding enterprises.

It would also be advisable to consolidate all the individual studies included in the workplan by the preparation of a comprehensive environmental management strategy for the development of the Istra River Basin, indicating how the pilots tested during the project will be generalized and the measures which have to be taken by other sectors to make this strategy viable.

e. Dissemination of results

i. There are insufficient activities designed to meet the objective stated in the EPA/USAID workplan of supporting water management and agricultural institutions, though this would be essential for the sustainability of the component. If the results are to be replicated, training courses on the new agricultural practices should be organized. During the present transition phase there are no extension services developed for small farmer's. Therefore, such training should focus on the agronomic engineers of the state and collective farms. As far as the protection of ground water resources in small communities is concerned, the training should focus on the local administrations. It may be mentioned that some courses for local communities have been included in the MSUGC proposal. However, this proposal is concerned about general environmental awareness and does not cover the results of the pilots of the component.

While a significant effort is dedicated to data collection on environmental organizations, this effort does not cover the agricultural and water management organizations which would be in charge of replicating most of the pilots. It would, therefore, be advisable to redesign these tasks, so that the information also includes such organizations.

4. Conclusions and Recommendations

i. The Istra component of the EPA project is the only one which is concerned with preventing pollution due to agricultural activities and to rural settlements. This concern is extremely important to Russia, taking into account both the weight of agriculture in Russia's national economy and the fact that agricultural pollution is spread over a great part of the territory. It is therefore important that some form of this component be completed.

ii. During the field trips, the evaluation team had extensive discussions with the representatives of the various institutes involved in the sub-project. These discussions indicated both the commitment of the Russian counterparts and their understanding of the sub-project and of its objectives. While they were generally satisfied by their cooperation with the Americans, they indicated that they needed information and technology in several selected fields such as monitoring and planning.

iii. The Moscow Drinking Water sub-project has started later than other sub-projects and,

therefore, the activities carried out until now have only related to initial identification of the problems and to training of Russian experts in the U.S. There are, therefore, no tangible results yet to be shown. Unfortunately, the planned activities are progressing slowly, and attention could be paid to accelerating them in order to make up for the time lost. As the Russians do not comprehend the reasons why this component of the sub-project was started so late and why the agreement between USAID and EPA could be signed only in November 1994, any additional delays will only have the effect of further diminishing the credibility of the U.S. assistance. Both because of the time required for implementation and of the need to produce tangible results of the project, the preparation of facilities for demonstration of technology and methods of manure utilization in large livestock enterprises, scheduled to be completed by June, 1995 and not yet started, should be given priority.

iii. Appointing a Russian project director has had a positive effect on the implementation of the Istra component, ensuring a coordination of the activities of the various institutes and organizations involved in the implementation. This collaboration would have been extremely difficult, if not impossible, from the U.S. This positive experience should be replicated in other sub-projects where no similar arrangements are yet in place.

iv. The discrepancies between the EPA/USAID workplan and the CARD workplan should be discussed and reconciled. The component is incomplete if the tasks related to the study of the pollution problem in the dacha area and the groundwater contamination are not included. However, the inclusion of these activities in the workplan should be approved by EPA and USAID, before starting the activities.

v. There should be increased input by U.S. experts in the data collection exercise, especially on the set-up of the environmental database. The U.S. input should make the Russians aware of the types of data which have to be collected, having the objectives of the component in view, as well as the data collection techniques. The need for mathematical models to meet the objectives of the project should be jointly assessed by Russian and U.S. experts. Assistance should also be provided in data processing and in mapping techniques. These tasks should be accelerated and the workplan should be modified accordingly, as it will be impossible to use GIS techniques, for which the procurement process has not yet started, if the task is to be completed in FY 1995 or even FY 1996.

vi. The technical solutions for the field demonstrations should be finalized as soon as possible, the cooperation agreements with the Agrarian Institute should be signed and work on the implementation should be accelerated, to take full advantage of the remaining part of 1995, before winter.

vi. There is also a strong need for closer cooperation between Russian and U.S. experts, especially for the program for public outreach and education. The solution adopted by CARD of contracting the tasks for this activity and leaving the Russians to work out their assignment, with only a final evaluation by CARD, could be replaced by a system in which both teams work more collaboratively and the output is the result of a common effort.

vii. The proposals of the Russian contractors for the public outreach and education should

be revised, making them consistent with the approved objectives of the EPA/USAID workplan. This review should:

- " eliminate tasks which are beyond these objectives,
- " eliminate the top-to-bottom approach and insist on public participation in the decision making process;
- " insist on the practical activities of environmental protection and awareness and reduce the research for a comprehensive educational system;
- " include assistance to the NGOs in order to strengthen their management and structure, giving them the capability of effectively representing the interests of the citizens and in broadening democratic participation on environmental issues.
- " include a more active participation of the American experts, to ensure the transfer of American methods and approaches.
- " ensure closer monitoring of the activities of the Russian contractors, such as mid-term or periodic reviews, in order to avoid guarantee that the final output is consistent with the scope of the project.

Due to the significant number of cooperating institutions, the revised workplan should also indicate the institutions involved in the implementation of each task.

viii. The monitoring system should be limited to the creation of experimental systems for the monitoring on point and non-point agricultural pollution as indicated in the CARD workplan. The extension to the Oka-Moscow basin, even with additional input from Germany, should not be attempted under this component, as it could lose its focus and be beyond the objectives of the component. The requests of the Russian experts to provide assistance for the determination benzopyrene and organoleptic characteristics should be examined.

ix. The activities necessary to achieving the planning objective of the component should be designed. The preparation of a strategy for the replication of the results over the river basin is essential for the sustainability of the project. Assistance should be provided in the use of simplified U.S. planning techniques and in incorporating economic concerns specific to the market economy in the planning process.

x. Training programs should be developed for the staff of the institutions which would be in charge of replicating the results of the project, not only in the environment sector but also in the agricultural and water management sector. This effort should also focus on strengthening the institutions which will be responsible for the replication. Such activities, which are now not included in the workplan of the component, are essential for the achievement of the stated objectives of the component.

xi. Closer links should be created with the other EPA's regional sub-projects in order to

build on the experience gained in the implementation of similar tasks, to avoid duplications and to design joint activities for similar tasks. The areas where such links have been identified are:

- " environmental education in high school and public awareness programs, which have been implemented, with less ambitious goals, in Nizhnii Tagil;
- " strengthening of NGOs which has been carried out in Nizhnii Tagil;
- " introduction of GIS systems, which are also planned in Nizhnii Tagil.
- " activities related to the replicability of results, the sustainability of the sub-project and the dissemination of information, which are much more developed in the Volgograd sub-project.

xii. It is necessary to maintain close contacts between the team working on the legal, regulatory and administrative review and Legal Task Force. This will allow the Legal Task Force to be involved in the discussions of the preliminary report and to have the opportunity to request the adjustments considered necessary for the support of its activities.

B. Permitting, Compliance and Enforcement Component

1. Scope and Objectives

The Permitting, Compliance and Enforcement component of the Moscow drinking water quality sub-project has the following objectives:

- " Application of improved municipal operation and maintenance techniques at three wastewater treatment plants in the Moscow area.
- " Application of improved monitoring, reporting and information collecting techniques to better characterize and control industrial discharges to municipal wastewater plants at three pilot facilities.
- " Development of Russian expertise in improved industrial wastewater technologies.
- " Development of improved compliance monitoring and inspection programs, leading to more efficient enforcement.

Other specific life-of-project objectives of the project include:

- " Format adoption of institutionalization of the most efficient and cost effective management strategies and technologies demonstrated at two-thirds or more of the demonstration sites;
- " Dissemination and adoption of municipal and industrial pollution control and prevention techniques, beyond the pilot sites, to at least an equivalent number in Moscow, Smolensk

and Tver oblasts.

2. Component Management

The component is directed by the Water Management Division of EPA's Region 5 (Chicago), drawing upon specialists from the Minnesota Pollution Control Agency (MPCA) and private consultants, mainly Parsons Engineering Science.

EPA has finalized the set-up for the implementation of the project, and agreements/contracts have been signed with MPCA and Parsons Engineering Science for the last two activities. The agreement with MPCA was signed in December, 1994. Subsequently, MPCA has fielded a mission in February, 1995 which had the following goals:

- observe/evaluate present Russian methods of O&M evaluation.
- demonstrate U.S. methods of O&M evaluation.
- jointly assess further training and equipment needs.
- identify next steps in the sub-project for U.S. and Russian participants.

In order to implement the training component of the sub-project, MPCA identified a non-profit firm (Connect/US-Russia) that specializes in conducting technical exchange programs between Russia and the U.S. Following a contract awarded by MPCA to Connect, training of a first group of five Russian experts has started in Minnesota and a second group is scheduled for August 1995. A next MPCA mission is scheduled in October to decide on the equipment specifications and on the steps to be taken in Russia.

The contract with Parsons Engineering Science has also been signed recently. A mission of EPA and Parsons was fielded and had commenced work in Gagarin, Dimitrov and Tver.

The participation on the Russian side was formalized in November, 1994. Protocols of Intention were signed between the EPA, MPCA and the Russian cooperators. The main Russian organizations involved in the project are MEPNR and the environmental protection organizations of the Moscow, Tver and Smolensk oblasts.

No Russian project director has yet been appointed for the project and the workplan does not include any provisions for such an appointment. According to the project design, the coordination of the implementation is left to the environmental protection organizations of the three oblasts (Tver, Smolensk and Moscow). This is partially due to the design of the component, which segregates the tasks implemented by the Americans and those for which the Russians are in charge. However, as the activities of the project get underway it would be advisable to have a project director who could supervise the activities carried out by the various implementing organizations in Russia, which include the environmental protection organizations of three oblasts, the Municipal Water Supply Authority of Moscow (Mosvodokanal), the municipal water supply authorities of the cities of Gagarin, Dimitrov and Tver, various industrial enterprises, different laboratories as well as

training institutions. Coordinating the activities of all these organizations from the U.S. will be extremely difficult, if there is no person in charge in Russia.

In discussions with EPA staff, it was indicated that the appointment of a project director was not considered indispensable for this component, though it might be useful. No explanation has been provided as to why this approach is different from the one adopted in the Istra component of the sub-project. However, the EPA status report for January-March, 1995 considers that the posting of an EPA staff person in Moscow for overall in-country coordination is expected to lead to significant improvements in communications with Russian participants. Negotiations have been also started with the World Health Organization (WHO) which would provide for a half-time wastewater project coordinator in Russia. No time-table has yet been set and it is difficult to expect that the WHO project coordinator will be fielded in the near future. The solution is, therefore, far from assuring satisfactory completion of this component.

The component has started later than other sub-projects and, therefore, the activities carried out until now have only related to the initial identification of the problems and to training of Russian experts in the U.S. Thus, there are no tangible results yet to be shown. The EPA/USAID workplan presented to the evaluation team has been approved in May, 1995. The activities carried out at present are consistent with the workplan.

This does not take note of the fact that the funding for this sub-project has been formally approved only in late September, 1994, much later than the funding has been made available for the other sub-projects, Volgograd and Nizhnii Tagil. Unfortunately, even after the agreement had been signed, the planned activities have progressed slowly, and there seems to be limited effort underway for accelerating them in order to make up for the time lost. MPCA fielded its first mission in February, 1995 but the Parsons Engineering Science team was fielded only in June, 1995, even though the consulting support was carried out under an existing EPA Office of Water contract.

3. Activities

The EPA/USAID workplan for the Permitting, Compliance and Enforcement component of the Moscow drinking water sub-project includes the activities presented in the accompanying chart. The present status of these activities is also indicated there.

a. Operations and Maintenance Improvements at Municipal Wastewater Treatment Plants.

i. Planned activities include a training needs assessment, training of Russian personnel in the U.S. and a pilot O&M at two Russian facilities, as well as an implementation assessment.

ii. The O&M evaluation assessment has been completed by MPCA and the training needs have been assessed. The training of Russian specialists in Minnesota is on-going.

iii. The EPA/USAID workplan does not include any activities following this training. It includes provisions for an evaluation at two facilities in Russia, without indicating which facilities. If the component is to cover the problems in three cities (Tver, Gagarin and Dimitrov), there is no

justification of why only two have been selected and by what criteria. However, this evaluation alone is only a first step towards the objective of improving O&M. The recommendations of the evaluation will have to be implemented and this implementation will have to be monitored and corrected with the assistance of American experts. All these tasks are missing from the EPA/USAID workplan. It should, however, be noted that the workplan covers only FY 1995 and that no workplan until the end of the project is available.

iv. The cooperative agreement with MPCA includes only the input of this agency. There are no provisions for agreements with Russian counterparts. This arrangement, which is different from the ones adopted for other sub-projects, is more suitable for technical cooperation than for technical assistance activities. It leaves the implementation and the sustainability mostly as the responsibility of the Russians. However, even in this concept, there is no workplan and no agreement on what tasks for which the Russians are responsible. There are also no deadlines for these tasks.

v. This component's outline of the estimated benefits shows that it aims at decreasing pollution loadings (in an extremely economic fashion), longer facility life with fewer mechanical breakdowns, etc. However, there are no reports concentrating on the starting benchmarks for these indicators and on the monitoring of the impacts of the component. Since, at present, the wastewater treatment plants are not performing to the design standards, it should be relatively simple to quantify their present performance compared to the design parameters and to set a target for the improvement. Cost estimates would also be needed.

vi. The EPA/USAID workplan is too sketchy to permit substantive comments on the planned activities. It is stated that a training/trouble-shooting delivery system will be developed to transfer knowledge to other oblasts and that an evaluation of the Russian implementation of the training will be carried out. There are no indications about who will conduct this training and who will participate. It is also stated that progress on developing a structure for information dissemination will also be assessed. The workplan does not include provisions for the development of such a structure and does not indicate who is in charge of this task.

b. Development of Improved Controls on Industrial Discharges to Municipal Wastewater Treatment Facilities.

i. Planned activities include assessment of the quality and quantity of current industrial discharges, training on assessment of industrial flows and loadings as well as on mechanisms for regulating industrial discharges, identification of current equipment capacity and determination of needs for conducting industrial flow and loading assessments, survey of integration of compliance schedules, self-monitoring, reporting and improved record-keeping requirements into Russian wastewater treatment plants' documents of industrial discharges, training on related topics and establishment of a training and outreach program.

ii. The EPA/USAID workplan for this activity does not include economic factors. An example of such a factor could be the estimate of the economic damages caused by pollution. The sub-project outline indicates that the wastewater treatment plants have difficulties in using the sludge, because of the high content of heavy metals. Therefore, the sludge cannot be used as a

fertilizer and has to be deposited. These increased costs should be considered a liability created by the factories which do not treat their industrial wastes. The assessment of these costs could be linked to the activities of the Legal Task Force, which could then investigate the possibilities in which the industrial plants would have to be responsible for this liability, besides the penalties provided by Russian law, for exceeding pollution limits. Such links, however, are not specified.

c. Development of Russian Expertise in Industrial Wastewater Treatment Techniques.

i. Activities are scheduled to commence with environmental audits in the pilot region at selected facilities such as:

- a synthetic fiber enterprise located in Tver with excessive zinc and sulphate levels in its discharge to the Tver wastewater treatment plant;
- a loud-speaker production plant with excessive levels of heavy metals in its discharge to the Gagarin wastewater treatment plant;
- a lighting fixture plant with excessive levels of heavy metals in its discharge to the Gagarin wastewater treatment plant;
- a textile mill, with excessive levels of oil and grease, surface active substances and dye contamination in its discharge to the Dimitrov wastewater treatment plant.

Planned follow-on activities include provision of information on treatment technologies (especially no-cost/low-cost technologies) applied in selected industrial processes in the U.S., review of applicable treatment technology-based effluent guidelines and pre-treatment standards and description of pollution prevention and source reduction techniques available to audited plants.

ii. The selection of the three separate sites (Tver, Gagarin and Dimitrov) appears to have been politically motivated, in order to involve all three oblasts covering the river basin upstream of Moscow. Technically, there is no justification for selecting three pilot sites to demonstrate the same type of improvements of wastewater management, when, as far as demonstration purposes are concerned, one could have been sufficient. Concentrating on a single site could have better utilized the reduced available funds. However, if three sites have to be included in the project, it would appear preferable to first concentrate on one of the sites and thereafter support the Russians to replicate these results to the other two sites. This would give the opportunity to test the capability of the Russians to replicate the results and to take corrective measures if required.

iii. The activities of the sub-project, especially the ones related to the audits of industrial plants, are focused on the audited plants alone, with much less concern on the future replicability. Thus, the workplan states that EPA will use contractor assistance to conduct an environmental audit and will train Russian specialists for observation of industrial wastewater facilities in the U.S. This will enable the specialists of the audited plants to improve their wastewater treatment. However, as in the present design of the components, the audits and the recommendations for improved technologies are made by the U.S. contractor, the Russians will gain no experience in conducting such audits and, consequently, they will not be able to carry out other audits on their own, in order

to replicate the results obtained by the project. If there is to be a replicability of the pilots, an institution building effort has to be made to train not only the staff of the audited factories, but also the staff of the institutes or enterprises which will be in charge of the future audits and of other environmental services. This requirement is essential to the sustainability of the project.

iv. The activities related to industrial wastewater pre-treatment and to the audits of industrial enterprises are similar to the ones carried out in the Nizhnii Tagil sub-project, which is more advanced and where a similar audit, also related to heavy metals in industrial wastewater, has been completed and Russian specialists are reportedly trained to conduct such audits. This creates the following contradiction between the views of the two sub-projects:

- if the training in Nizhnii Tagil was adequate and successful, the know-how of conducting industrial audits, at least for the heavy metal problem has been transferred to Russia and the audits in the Moscow region could be performed by the Russians, instead of using an U.S. contractor;
- if the option of using an U.S. contractor for the Moscow region is correct, it implies that the Nizhnii Tagil sub-project has not been successful in transferring the know-how.

The assessment of the evaluation team is that the training in Nizhnii Tagil has not focused on institution building and on creating the teams which would be capable of providing environmental services to industry. This simply reinforces the previous assessment of the importance of the institution building activities concentrating on organizations capable of providing future environmental services and proves that without such an activity the achievements of the sub-project are not sustainable or replicable.

v. The investigations underway do not include any determination of costs, which seems to be an oversight which could handicap decision making. The scope of work of Parsons Engineering Science does not include any mention of cost estimates. The apparent reason for this approach is the way the activities are designed, in which there is no integration of the U.S. and Russian teams. As an example, in carrying out the audits, the required data are collected, mostly by the Russians. The data are then analyzed by the U.S. experts who process the data on their own, almost without the cooperation of the Russian counterparts. In this segregated approach, the U.S. experts obviously do not have the capability of estimating the costs of the technical alternatives. The alternatives are thereafter presented to the Russian counterparts, who may work out the costs and who accept or reject the proposals. This procedure eliminates the economic part from the process of designing the various alternatives. As this is practically impossible, the U.S. consultant will have no alternative but to base his/her conclusions on the cost estimates of similar solutions in the U.S., which may or may not be consistent with the Russian situation. It also sends the wrong signals to the Russian counterpart, who may assume that the economic factor is secondary and may be ignored in the selection of alternatives.

It may be mentioned that the team of Parsons Engineering Science includes two individual Russian experts. This involvement in the activities will be an opportunity for transferring the know-how on the procedures applied by the U.S. consultants to these Russians. However, this involvement of two individual experts cannot replace a systematic institution building effort.

d. Development of Compliance Monitoring and Inspection Programs for more Efficient Enforcement.

i. Planned activities include a survey of existing enforcement practices, training in environmental enforcement, specialized inspector training and development of a model enforcement program for drinking water quality.

ii. The project design puts great emphasis on monitoring and improved measurement and laboratory techniques. However, even without additional input, the Russians have considerable amounts of data which they are collecting. A problem they are facing and which is not sufficiently addressed by the project is the storing and processing of these data, which, in most cases, are stored on hardcopies and are difficult to access. The data are collected by various entities and there is little exchange of information between the units using the data. As the data processing system is not computerized, data which are required for the operation of the various treatment plants are transmitted in cumbersome ways. Even if, due to the project, O&M of the upstream wastewater treatment plants is significantly improved, the risk of accidents cannot be completely eliminated, and the monitoring system has to be able to identify such accidents and to transmit the relevant information to the operating units in time to take the appropriate measures. Therefore, monitoring alone, without an appropriate information system, will not be sufficient.

Storing the data on hardcopies makes it difficult to process these data, to obtain statistical results and to identify trends. Using computerized data processing techniques enables additional information to be made available to the operators of the treatment plants and should have an influence on the operating procedures. Therefore, the improvement of the operation and maintenance of the treatment plants has to be linked to an improved information system.

A computerized data base system, which would be used by all units in the region, enabling the on-line sharing of data and automatic transmission of the required data from the laboratories or data collection units to the operating units would be necessary. The implementation of such a system may be beyond the financial capabilities of the project, even if part of the required hardware and software could be procured under CIP arrangements. It would, however, be highly desirable to include the design of the informational system in the activities of the project and, at least, to start with the implementation of the database.

4. Conclusions and Recommendations.

i. The emphasis of the component is on improving O&M wastewater treatment facilities. This issue is important in Russia, as in most cases, wastewater treatment facilities do not achieve the results for which they were designed. Frequent breakdowns, as a result of inadequate O&M, cause corresponding accidental pollution downstream. Obviously, there is no point in considering the construction of new wastewater treatment plants, if the existing ones are incorrectly operated and maintained. The component thus addresses a priority problem for environmental protection, which is important, not only for the Moscow region, but for a great part of Russia. If successful methods of improving the O&M of wastewater treatment plants are identified, they could be replicated in many other cities. Taking into account this replicability, the component could thus

contribute significantly to the reduction of pollution due to municipal wastewaters in Russia.

ii. The issue of the assignment of a Russian project director in the field should be reconsidered and a project director should be appointed as soon as possible. This is essential if the activities of the component are to be accelerated. The solution of appointing a half-time director through WHO funding may take too long to materialize, as no agreement has yet been finalized with WHO and also due to the time consuming hiring procedures of the UN system.

iii. As the project is supposed to be completed by the end of 1997 and, at least in the industrial wastewater treatment there is also a need to implement new treatment techniques, which at present are not even identified, there is a strong risk that the objectives of the sub-project will not be met, if the pace is not accelerated almost immediately.

iv. The EPA status report for January-March, 1995 indicates that during the February, 1995 MPCA mission to Russia, USAID staff expressed concern that the Russian participants did not understand the projects and that Russian objectives for collaborative work differed from EPA's. In particular, the need to provide more tangible results was emphasized. This perception is due partly to the late inception of the component and partly to the component design which does not provide for clear, measurable results. The objectives of the component, as written, are difficult to quantify, as they are mainly defined as "improvements" and "strengthening". Consequently, it will be impossible to assess at the end of the project if the objectives have been met or not, in the absence of baseline data and tracking. The EPA response to this statement, presented in the status report, is that the problem will be solved by training and technical exchange programs, as well as through work with the Russian participants to develop lists of needed wastewater treatment and monitoring equipment and supplies. The evaluation team questions if this is the appropriate response and also if the component will be able to finance them or if they will have to be procured under CIP. It is recommended that the objectives of the component be revised and redefined with the Russians and USAID so that the outputs are understood more clearly and are quantified and measurable.

vi. The workplan of the component is much more general than the workplan for other sub-projects. It, therefore, creates the impression that the activities of the component are being refined during the implementation, without a very clear view of what lies ahead. It is recommended that the workplan be reformulated, covering the entire period until the termination. The workplan should ensure that the activities and tasks are adequate to meet the objectives of the component, define the component tasks in detail, indicate the responsible parties and set target inception and termination dates for each task.

vii. There are only general agreements signed with the city administrations of Tver, Gagarin and Dimitrov. However, there is no detailed workplan and no deadlines for the tasks which have to be completed by the Russians. The EPA/USAID workplan does also not indicate that some of the tasks depend on the achievements of the Russian counterparts. The contract with Parsons Engineering Science indicates that some of the tasks will be carried out "if the Russians complete the implementation of the recommendations in time". The objectives of the component cannot be achieved without the activities which are the responsibility of the Russian counterparts, and there will be no pilot demonstration plants if the Russians do not implement the recommendations. Therefore, it is essential to prepare a comprehensive workplan including also

the activities implemented by the Russians, or, at least, the assumptions concerning these activities.

vii. It is strongly recommended associating one or more Russian consulting firms (probably privatized design and research institutes) who would specialize in providing environmental services, so as to enable them to gain the necessary expertise in performing the audits of industrial wastewater systems. The staff of these institutes should be associated with the U.S. contractor, participating not only in the data collection exercise but also in the formulation of the recommendations. This issue has been discussed with the management of the Water Design Institute, which is associated with the Istra component of this sub-project. The institute's management expressed a strong interest in developing teams specialized in carrying out audits and providing services to industries.

viii. The activities of the project show limited attention to economic factors. Because of overall state ownership in the past, economic issues were of little concern to Russian technicians. Due both to the transition towards a market economy and to the decentralization which gives a greater autonomy to regional and municipal authorities, economic concerns will become of greater importance and Russian engineers will inevitably be forced to take them into account in their decision making. It would therefore be desirable to put more emphasis on economic analysis in the training of Russian engineers and in the identification of solutions.

ix. The monitoring component should also focus on the computerized data processing and on an informational system to make the data available to all interested parties. This would imply, as a first step, the assessment of the necessary hardware and software. As the project does not have sufficient funding for the procurement, the possibilities of using CIP funding should be explored and the necessary specification prepared. Training of Russian experts on the use of the computerized monitoring system should be included in the training activities of the component.

C. Support Activities

1. Scope and objectives.

The workplan does not indicate specific objectives for the support activities, even though these activities are only loosely linked to the objectives of the two pilot projects. The only specific life-of-project objective indicated is:

- the adoption of improved microbial laboratory techniques by a laboratory of the Sanitary Epidemiological Service or of the Municipal Water Supply and Sewage Authority, with responsibility for assessing drinking water risks to Moscow's citizens.

2. Activities.

The support activities of the sub-project are:

i. Assistance to water quality laboratories. Planned activities include assistance on microbial analysis of drinking water to reduce health risks from the ingestion of drinking waters with elevated bacteria, virus and protozoa levels. This assistance will cover:

- an evaluation of filtration performance using microscopic particulate analysis;
- equipment and training support for Giardia and Cryptosporidium analyses;
- strengthening Russian environmental virology capabilities.

Further capability for identifying pollutants in drinking water and wastewater is to be enhanced by establishing a state-of-the-art central laboratory facility in the Moscow region, to be financed under the CIP.

ii. Assistance to field water quality monitoring. The majority of this effort focuses on training and other technical assistance. In addition, some field instrumentation for water quality monitoring is included, to provide:

- immediate capability for public health and utility specialists in the Moscow region to track accidental releases of inorganic and nutrients back to the source,
- assess pilot project effectiveness,
- a clear, physical expression of U.S. support in the earliest stages of the program.

Activities started with the delivery of field water quality monitoring equipment, probably to comply with the provision of the workplan as a clear, physical expression of U.S. support. This equipment was identified by specialists of the Water Resources Division of the U.S. Geological Survey (USGS) which accompanied EPA on a March, 1994 mission, following an Inter-Agency Agreement.

iii. Assistance in environmental law. The preferred approach to legal assistance is based on the Western model in which lawyers do not work alone, but are part of a larger team of environmental protection specialists, each of whom has a part in shaping the final product. Legal assistance in water will fall under the responsibility of an overall Legal Task Force, which will also be working with other EPA-led pilot projects.

An inaugural Legal Task Force meeting was held in Washington in November, 1994, focusing on the concept of client counseling and introducing discussion topics for the February 1995 Moscow meeting. Prior to this meeting, the U.S. side provided training for the Russian Task Force participants in Washington, as part of another USAID funded training program (NET).

The first full Legal Task Force meeting was held in Moscow from February 28 to March 2, 1995. The meeting drew together the leading Russian environmental law specialists and agreement was reached on the purpose and goals of the Task Force. The meeting brought forth key similarities and differences in the U.S. and Russian legal approaches to environmental protection and established a factual basis for understanding the linkages between the demonstration projects and legal issues.

3. Conclusions and Recommendations.

i. Except for the Legal Task Force, the support activities have been incorporated in the sub-project to solve localized problems related to the drinking water supply of Moscow. They are not components of a sub-project designed to meet certain objectives, but mainly to fill some gaps. At least in part, this seems to be due to the delays in the inception of the main components of the sub-project and the limited results to date. This is particularly obvious in the provision of monitoring equipment to the field water quality laboratories, which has been provided as a clear, physical expression of U.S. support in the earliest stages of the program. Even if it were necessary to show such an expression of support, this could have been done by procurement under the CIP arrangements, without putting more strain on the limited budgetary resources of the project itself.

ii. The assistance to microbial analysis of drinking water is more focused on strengthening the monitoring of health problems in the Moscow drinking water supply. However, the limited objective of the activities will enable only monitoring of the drinking water quality and corrective measures. Additional water laboratory assistance for identifying pollutants in drinking water and wastewater will be provided under the CIP. This assistance is beyond the strict scope of the sub-project, but does reflect the goal of the overall project. As the intention is to create a state-of-the-art laboratory, this objective would, however, also require extensive training and institution building activities, for which no funding is now available.

iii. The support activities, show a lack of design of the sub-project, which may not have been available when the Project Memorandum was signed in February 1993. The formulation of the objectives and the preparation of a detailed workplan for the support activities is needed.

iv. A visit was made to the laboratory of the Municipal Water Supply and Sewage Authority, which had received some equipment provided by USGS. Short training had been provided with the equipment. The staff of the laboratory had been able to use this equipment for monitoring. They indicated that although the laboratory had equipment to carry out the same measurements, the new equipment was easier to handle and provided the results faster. However, there had been problems with the hardware, mainly the batteries, which had been somehow solved by their own means. The results of the measurements by one of the pieces of equipment were not consistent with the ones previously obtained, and the discrepancies could not be explained. The laboratory felt the need for follow-up assistance or a hot-line through which such questions could operatively be solved.

v. The limited resources available certainly make it impossible to consider solving all the problems of the Moscow drinking water supply and even to make demonstrations of all the techniques available. It was, therefore, necessary to select some priority areas of concern, and state clear objectives for these areas. The problems of the wastewater treatment and the agricultural pollution have been identified. In this case, the sub-project could concentrate on these issues and leave other issues to be solved by other means. If, during the discussions, the microbial analysis of drinking water was identified as having higher priority, it would have been possible to eliminate or reduce one of the other components and design a new component leading to the solution of the microbial problem of the water supply.

The way the sub-project is presented indicates that there have been difficulties in defining the priorities and in focusing the project on the limited objectives thus defined. Instead, an attempt was made to cover too many areas, which has spread the sub-project too thinly, given the limited resources. This, in turn, will reduce the results of the main components of the sub-project (and possibly of other sub-projects as well).

STATUS OF ACTIVITIES FOR THE
ISTRA RIVER SMALL WATERSHED MANAGEMENT COMPONENT.

Activity 1. Baseline Surveys and Basic Data Collection			
Task	End	Output	Status
General opinion survey	Apr. 95	Report	Completed
Economic feasibility of livestock enterprises	Jul. 95	Report	On-going
Update of environmental data base	Sep. 95	Report	On-going
Survey the dacha residents	Dec. 95	Report	On-going
Institutional analysis, consisting in a review legal, regulatory and administrative policies which affect improved agriculture and water management in the Istra basin	Sep. 95	Report	Preliminary report completed. On-going.
Assessment of animal waste management at drying facilities.	Sep. 95	Report	On-going
Assessment of rural water and wastewater management of dacha communities and settlements.	Sep. 95	Report	On-going

Activity 2. Field demonstrations of animal technology and management methods			
Task	End	Output	Status
Small farm management demonstrations	Sep. 97	3 Demo Sites	Started
Livestock farm management demonstrations	Sep. 97	2 Demo Sites	Started
Riparian buffer zone demonstrations.	Sep. 97	Demo Sites	Started

Activity 3. Development of a program of public outreach and education			
Task	End	Output	Status
Local school programs	Dec. 95	Report	On-going
Support for environmental NGOs, including approaches to strengthen local NGO management and structure	Dec. 95	Report	On-going
Public awareness activities	Dec. 95	Report	On-going

Activity 4. Development of a program for comprehensive water quality monitoring			
Task	End	Output	Status
Initial assessment of receiving water quality for future appraisal of the improved demonstration technologies.	Dec. 95	Report	Started
Pollution source monitoring at demonstration sites.	n/a	Monitoring system	Future
Improved water quality monitoring network on the Istra, Maglusha and Little Istra rivers, integrating chemical, physical and biological networking	n/a	Monitoring system GIS system	Future

Activity 5. Dissemination of results			
Task	End	Output	Status
Dissemination in the Moscow-Oka basin	n/a	Education program	Future
Dissemination to other basins	n/a	Information program	Future

STATUS OF ACTIVITIES FOR THE
IMPROVED WASTEWATER COMPLIANCE AND ENFORCEMENT COMPONENT.

Activity 1. Improvement of operation and maintenance at municipal wastewater treatment plants.			
Task	End	Output	Status
Operation maintenance evaluation assessment	Feb. 95	Report	Completed
Training of Russian specialists in the U.S.	Jun. 95	6 trained specialists	Completed
Pilot operation maintenance evaluation	Oct. 95	Report	On-going
Implementation assessment	1996	Report	Future

Activity 2. Improvement of controls on industrial discharges to municipal wastewater treatment plants.			
Task	End	Output	Status
Utility twinning	Feb. 95	Report	Completed
Training needs assessments	May 95	Report	On-going
Training in the U.S.	Sep. 95	Trained experts	Future
Joint industrial assessment	1996	Report	Future

Activity 3. Strengthening of Russian expertise in industrial wastewater treatment			
Task	End	Output	Status
Completion of industrial facility review and comparability analysis	n/a	Report	On-going
Specialized training	n/a	Trained experts	Future
Project oversight and dissemination	n/a	Training infrastructure	Future

Activity 4. Improvement of compliance monitoring and inspection			
Task	End	Output	Status
Guidance review	n/a	Report	Future
Initial enforcement training	Oct. 95	Trained specialists	Future
Additional training and guidance	1996	Guidance materials	Future

STATUS OF SUPPORT ACTIVITIES
FOR THE MOSCOW DRINKING WATER SUB-PROJECT COMPONENT.

Activity 1. Assistance to water quality laboratory			
Task	End	Output	Status
Assistance on microbial analysis of drinking water	Apr. 95	Report	Completed
Additional water laboratory assistance	Jul. 95	Report	On-going

Activity 2. Assistance to field water quality monitoring			
Task	End	Output	Status
Supply of equipment	Feb. 95	Monitoring equipment	Completed
Follow-up assessment and training in Russia	Jun. 95	Report	Future

Activity 3. Environmental law assistance			
Task	End	Output	Status
Legal Task Force	n/a	Reports	On-going

Nizhnii Tagil Sub-Project

1. Scope and Objectives

The Nizhnii Tagil sub-project is an integrated environmental project, designed to help the government, industries and citizens of Nizhnii Tagil undertake environmentally sound economic development and defense conversion and improve environmental quality in the city. The project emphasizes environmental audits and low cost pollution measures at local plants to increase production efficiency and cut pollution, improving the management capacity of local environmental agencies and fostering community based democratic decision making. According to the USAID/EPA workplan, life-of-project objectives include:

- Improvement in the capacity of the city to monitor, measure and enforce compliance by preparing a draft compliance agreement, with a full schedule for the attainment of environmental norms, between the city government of Nizhnii Tagil and one or more major polluters in the city, in accordance with the city's environmental action plan.
- Prevention and reduction of pollution at 1-3 industrial enterprises and municipal facilities in Nizhnii Tagil, through the conduct of 4-5 environmental audits, the initiation of follow-on pollution prevention programs and the training of 40-50 industrial and municipal personnel in the courses on environmental audits and pollution prevention.
- Improvement in the capacity of the private sector to provide environmental services and an increase in the number of qualified environmental professionals by helping to establish one or more environmental consulting firms in Nizhnii Tagil and the Ural region and by providing training for 8-10 personnel at this firm.
- Provision of one or more cost effective environmental solutions by introducing innovative, low cost environmental technologies and practices at one or more enterprises in Nizhnii Tagil or the Sverdlovsk Oblast, in part on the basis of risk analysis and audit recommendations.
- Increase in the capability of the private sector to raise environmental capital by identifying promising investment opportunities and preparation of loan or grant documentation for one or more prospective environmental investments.
- Greater public awareness of environmental problems by training teachers in environmental education through the development and introduction of a new course on environmental education at the Nizhnii Tagil Pedagogical Institute and by introducing a new environmental curriculum at three secondary schools in Nizhnii Tagil, for replication in other schools and communities,
- Encouragement of public participation in environmental decision making by strengthening two or more environmental NGOs in Nizhnii Tagil through training, grants and access to Internet and other environmental NGOs.

- Improvement in the city's environmental planning capacity by training environmental officials and by establishing an environmental priority setting committee that will review and analyze environmental data and help set city environmental priorities.
- Improvement in the environmental management capacity in the Ural region by creating a self-sustaining environmental training and information center in Ekaterinburg, to provide environmental management training for environmental professionals and others from government, industry, and citizens' groups and to disseminate the experiences and results of the Nizhnii Tagil project in the Ural region and throughout Russia.

2. Sub-project Management

The Office of International Activities (OIA) in EPA is in charge of the management of the Nizhnii Tagil sub-project. An EPA staff person has recently been assigned to Nizhnii Tagil to serve as on-site project manager. His duties are to provide substantive and technical support to the sub-project, ensure effective project management and performance by Russian project staff and contractors as well as by U.S. contractors, provide oversight for financial procedures and accounting, provide backup for logistical arrangements as needed and generally to facilitate communications and coordination.

On the technical side, support was initially provided by CH2M Hill, the prime contractor to USAID for EPT. By agreement with USAID, EPA was supposed to have access to a total of \$2 million worth of support for the Nizhnii Tagil sub-project. Because of the reported difficulty of EPA having direct access to a USAID contractor and because EPA felt it could obtain better prices elsewhere, this arrangement has been subsequently revised and it has been agreed that a large portion of the \$2 million would be moved directly into the next IAA for EPA. Following this revision, EPA has recently awarded SAIC the contract for the remainder of the work. Other American contractors working with EPA on this sub-project are ISC, Environomics and Bowling Green University, Ohio.

On the Russian side, project management is realized by a project manager and supporting staff, for which a project management office has been set up. Russian specialists are recruited through institutional sub-agreements made with cooperating organizations or individual experts.

3. Activities

The EPA/USAID workplan for the Nizhnii Tagil sub-project includes the activities presented in this appendix. The present status of these activities is also indicated in the appendix.

The activities planned for the Nizhnii Tagil environment sub-project consist of five integrated components, each of which will emphasize reliance on local expertise, democratic decision making, leadership development, documentation and dissemination of project results and strengthening institutional capacity.

a. Improvements in environmental quality

i. A first audit has been carried out, by CH2M Hill, at the Medical Instruments Factory for the reduction of nickel discharges into wastewater, reduction of water use and reduction of wastewater discharges. The estimates of the EPA experts forecast a reduction of nickel discharges of around 30 percent; however, the expectations of the engineers of the factory hope for a reduction of around 75 percent. Recommendations are yet to be finalized and to be discussed with the factory, after which the implementation of the agreed upon measures can start. However, after an initial stage of suspicions, the climate appears to have gradually improved and EPA has indicated an increased willingness by the Russian counterparts in this and other factories to cooperate.

ii. The following planned audits are behind schedule, mainly due to the interruption of the project's activities until the security problems related to the work of experts had been settled by discussions with the Russian authorities. Another reason for the delay is the lengthy discussions between USAID and EPA, regarding the contractor for the audits. Finally, the Russian counterparts strongly opposed any new audits being started until the results of the first audits were received, discussed and finalized. This is due to the fact that until now there have been mostly data collection activities carried out and, so far, the Russians have indicated to the evaluation team that they see no concrete results from these audits.

This issue was raised by the Russians in the context of the drinking water supply of Nizhnii Tagil, which is the object of the second audit of the sub-project. This audit is to cover two separate sources each using its own storage reservoir. Data collection has started on the first reservoir, but final negotiations are still underway with the Russian counterparts on the scope of the audit. While the Russians wanted a separate audit for each source, the U.S. experts pointed out that a look at the entire water supply system was necessary to determine the water quality at the taps, because of the contamination of the water supply network on the reach between the source and the consumer. As one of the sources has no treatment plant at all, the Russians consider that such a plant is absolutely necessary to meet the drinking water standards. As a consequence, they have prepared the design of a new treatment plant, which they would like the U.S. experts to evaluate. While the Russians acknowledge the difficult economic situation of the country, they also indicate that the Government would be willing to fund such investments, either through loans or from its own resources, especially as new fund raising measures in Nizhnii Tagil have also recently been approved by the Government. However, they consider that more cost efficient solutions might be available in the U.S. and would, therefore, very much like to have their designs evaluated. The activities related to these investments are not included in the EPA workplan, which only mentions low cost/no cost solutions.

A compromise solution appears to have been reached recently and the audits for the drinking water will be finalized in the near future. Also, work on the remaining audits will be finally started. The situation, however, illustrates the difficulties in dealing with the Russians on such matters and the lengthy negotiations which are required to reach agreement.

iii. At the oblast level, the Russian counterpart considers that, though activities have been going on for some time, there are still no results in sight. The U.S. experts concentrate their efforts

on low cost solutions. While the Russians do not deny the merits of such solutions, they consider that they are also low effect solutions. This concern may not be totally justified, as the solutions recommended for the Medical Instruments Factories are supposed to lead to a significant reduction in the pollution with heavy metals. However, the Russians will be able to assess the merits of the low cost solutions only after their implementation.

iv. The limited collaboration between the U.S. and Russian teams on the essential part of the project, i.e. on the analysis of the alternatives and the selection of the recommended solutions, has also had adverse effects on the general climate of the American-Russian cooperation as well as on the activities of the sub-project. At a general level, it creates a frustration on the Russian side of being eliminated from part of the essential activities, which is more or less openly interpreted as a lack of recognition of their technical capabilities. Since without Russian participation it is impossible for the American experts to come up with cost estimates and an economic analysis of the recommended solutions, these are not included in the U.S. recommendations. Cost estimates are done by the Russians, in the process of analyzing the recommendations made by the U.S. experts. This process creates a segregation between the technical and financial aspects, instead of having economic factors better integrated into the process of identifying solutions.

v. In this context the absence of a cooperating Russian firm for environmental services (included in the objectives of the project but not in the activities) limits the Russians from participating the process of selecting solutions and making recommendations. EPA efforts in this direction have lead to the identification of a single private environmental consulting firm in Nizhnii Tagil, called Tagilekopro. Several associates of this Tagilekopro have worked on various project activities (including the environmental audits and the community planning and priority setting committee) but have made only minor contributions to the formulation of recommendations. However, this approach should be reconsidered, and the possibility of involving national institutes or enterprises should be investigated, as those which could provide environmental services nationwide, and thus ensure the replicability of the sub-projects outputs, are not physically located in the Sverdlovsk oblast.

b. Institution building

i. The implementation approach under this sub-project component involves a combination of training of personnel, studies and technical assistance in developing effective state-of-the-art monitoring and risk assessment procedures, access to databases and relevant information sources, use of environmental health information to set policies and priorities to make environmental decisions, and establishment of visible, continuing local funding sources for local management agencies. Planned activities cover fundamental environmental management issues including:

- environmental monitoring and laboratory analysis;
- environmental health assessments;
- standard setting, permitting and enforcement;
- financing for environmental protection;
- environmental law.

Activities within this component are still in the incipient stage. Reviews have been made on

government laboratories and existing availability of data. Training in quality assurance and quality control (QA/QC) is on-going. However, follow-up activities are still to be organized.

ii. The activities of the sub-project focus on training, methodology and regulations and less on institutional development, though this aspect has not been omitted and activities related to setting up municipal environmental services are planned. More efforts are needed to handle the environmental data which at present are disseminated, as each enterprise has the responsibility for monitoring its own environment, with no obligation for transmitting the data to the local environmental authorities. Other data are collected by various government organizations such as the local environmental authority, the hydro-meteorologic services and the sanitary epidemiologic authority. The traditional trend towards secrecy makes many of these data difficult to access even for government authorities and practically inaccessible to the general public and the NGOs. Many of the problems of the audits are related to the collection of the existing data, which is time consuming and involves considerable administrative hassle. In most cases, all the available data are stored on hardcopies. An analysis of the system would be required to get an overall picture of which data are available in various organizations and to set up procedures for transferring them to a computerized database or database(s) as well as for accessing them by all interested parties. This analysis could also indicate the responsibilities of each of the parties within the informational system.

iii. A contract has been signed with the Ural Polytechnic Institute to develop an environmental audit and pollution training program adapted to the situation in Russia and in Nizhnii Tagil and to deliver a one-week course in pollution prevention. The Ural Polytechnic Institute is also cooperating with the project by carrying out investigations such as an analysis of the software required for environmental databases, GIS for environmental data, etc. However, it is not clear who will be in charge of the actual implementation. A GIS system can be quite complex and its use would be easier by a design/research institute than by an environmental monitoring laboratory, especially in Nizhnii Tagil, where computerization is still in its initial stages and even less complex information is not computerized.

c. Community based environmental planning and priority setting

i. Within this component of the project an environmental priority-setting committee, consisting of representatives of government, industry, academic institutions and public associations, was established in Nizhnii Tagil. This committee has four sub-committees and the entire set-up appears to be working well.

ii. As far as NGO activities are concerned, the project is focusing on the activities of the "Ochishchenie" (Clean-up) environmental club in Nizhnii Tagil. The project has funded the renting of office space for the club and of basic office equipment. Future activities provide for the training of NGO staff on the use of office and communications equipment as well as on environmental strategy and planning. Discussions with the members of the club indicate that the NGO has had an impact on local communities, but also that it will need considerable strengthening. Various groups of Nizhnii Tagil have approached the NGO to request help and advice to solve their environmental problems, but even after receiving help or support these groups have not become further involved in the NGO's activities. The membership of the NGO consists exclusively of retired or unemployed

persons; people who are still employed and are interested in environmental issues still feel that political pressure is applied and fear to become part of the club, even if the issues they are involved in are not directly related to their employer. Therefore, the strengthening of the NGO could be viewed as an important component in the process of democratization.

As an example of the environmental club's activities it may be mentioned that the club has identified the problem of using the old strip mining pits as dumping sites for solid waste as an environmental hazard and has requested such uses to be stopped. As a consequence of the club's actions, various technical task forces have been set-up. According to the statements of the club's committee, the conclusions of the first task forces have acknowledged this environmental hazard; however, the government has set up new task forces to re-analyze the issue, and finally these task forces have declared the use of the pits as environmentally safe, though the experts accepted by the NGO did not concur with this conclusion. The NGO now intends to take the issue to court.

The NGO, however, does not have its own experts and has difficulties in covering the costs of legal action. As there are no independent private consulting firms, it has limited access to technical consulting services. Therefore, the only action available is to place reliable experts, whose integrity it trusts, on the various task forces. Further assistance might have to be incorporated in the sub-project's activities to assist the NGO in getting advice on how to use the Russian judicial system and how to get expert advice on their actions.

iii. Other activities have aimed at creating closer contacts among Russian and similar U.S. organizations. Thus, the city of Nizhnii Tagil has been twinned with the city of Chattanooga, Tennessee, which is similar in size and has faced similar pollution problems in the past.

d. Environmental education

i. The emphasis of the first phase of the environmental education component was placed on the education of school children. The Pedagogic Institute has developed a curriculum for environmental awareness which is to be taught during two semesters in the last two years of high school (16-17 year old students) with 30 hours in each semester plus additional summer practical activities. The Russian educational system, though highly centralized, allows for a certain percentage of the school activity to be decided upon by local authorities. This curriculum has been presented to the evaluation team and appears to cover the main issues of the environmental concerns in the Nizhnii Tagil area well. This course will be taught starting in the Fall of 1995. During discussions with the evaluation team, the Pedagogical Institute agreed that this should be considered only as a first step, and that a revision of other courses (such as geography, biology, chemistry, physics, etc) should also be considered, so as to integrate environmental concerns. This would be necessary to convey the concept that environmental issues are not isolated from the main courses taught during high school.

ii. Steps have been taken to train the teachers and to have the training of the students start in the second semester of the school year in 1995/96. While the subjects covered by the environmental course are relevant to the Nizhnii Tagil area, it should also be considered that the Russian educational system is mainly designed to give the students knowledge and not skills. It might still be advisable to include a less strict separation between the theoretical part of the course

and the practical part, which is limited to the summer work. This would require some special equipment to be provided to the school, such as simple environmental monitoring equipment, which would be used in the schools by students. While the costs of this equipment would not be excessive, and could be provided for under CIP funding, the equipment could have an important impact on the results of the courses.

iii. The present activities are aimed at preparing the teachers for the experimental courses on environment. However, as this is a new discipline, it is advisable to consider having these teachers visit some schools in the U.S. to enable contacts with their American colleagues. NET training project funds would appear to be available for this purpose to supplement EPT project funding.

e. Center for Environmental Training and Information (CETI)

i. CETI has been established in Ekaterinburg and is presently fully staffed and operational. Discussions held with the staff at Ekaterinburg revealed that they are highly qualified and dedicated. Office space and equipment have been provided. CETI has started to be actively involved in the training activities of the project. Some delays have occurred mainly due to the formalities required by Russian authorities to give the center a legal status. These formalities have recently been completed; however, the center had started to work even before all legal requirements were met.

At present, the CETI is totally funded by the project. Since the training activities of the project do not provide for any costs to be covered by the enterprises from which the trainees are recruited, finding other sponsors would require the center to get involved in activities beyond the ones included in the project's workplan. The CETI presently does not have the man-power to cover such additional activities.

ii. The Russian experts interviewed have indicated that, in some cases, the courses presented by American facilitators were insufficiently focused. Some courses were not adapted to the actual level of Russian participants, many of whom are highly qualified professionals, with extensive field experience and frequently having higher academic degrees. Also, Russians who were interviewed mentioned that some of the courses started with notions which were too elementary or not relevant. For instance, in one of the courses, the American examples presented were related to a leather factory, though there is no such factory in the Sverdlovsk oblast, where the major sector is metallurgy. This indicates the need for better preparation of the courses.

iii. Additional training in management and business development would be required for the staff of CETI to familiarize it with the procedures of fund raising and of generating the interest of potential sponsors. As in Russia, and especially in the Urals, which were a closed region, there is no culture of private financing of such centers. Thus, the staff has little knowledge of how to proceed in this direction.

iv. In the establishment of CETI, limited provisions have been made for the creation of a library. As the environmental concerns have been secondary in the Ural region, there is no place where documentation on environmental issues is available. The project's budget contains insignificant provisions for such expenditures. In the absence of up-to-date documentation (books,

subscriptions to magazines, etc.) CETI will not have the possibility of developing new courses and will have to rely on the materials provided by the EPA trainers, which will inevitably become obsolete in a relatively short time. As the Russians are certainly interested in new technologies, it would be advisable to provide the center's library with documentary material on equipment and technologies provided by U.S. companies. This would give the Russian experts access to information about the capabilities of American companies and enable them to contact these companies directly, in case equipment or services from such companies are required.

4. Conclusions and Recommendations

i. Because of communications and coordination concerns and given the sheer size and complexity of this sub-project, EPA made a wise decision in assigning to Nizhnii Tagil a full-time resident EPA staff person to assist in all aspects of this sub-project. While still new to the local scene, this EPA coordinator is already helping to improve the operation of this sub-project and should prove to be even more valuable in its future management. However, since his assignment is only for eleven months, EPA, USAID and the Department of State should work together to find a way to assure the continuation of an EPA representative in Nizhnii Tagil during the remaining two years of this sub-project.

ii. Regarding management, the Russians are clearly interested in more collaboration between U.S. and Russian counterparts as equal partners. For that reason, Russians need to be more active participants in all stages of this sub-project. The Russians have very much objected to excessive U.S. layering of contractors, as in the case of EPA's planned use of Pragma, an American consulting firm, whose role the Russians vetoed as being unnecessary when there are already qualified Russians available to provide such local support.

iii. The activities related to the improvement of environmental quality are viewed by the Russians, at least at the central and at the oblast levels, as being the most important of the sub-project, as they will directly contribute to the reduction of pollution in Nizhnii Tagil. Basically, the expectations of the Russians are not to only receive general advice on the solutions, but also to get the technological know-how and cost estimates to implement detailed recommendations. The audit in itself is not viewed as an objective, but as a first step. Unfortunately, these activities are the ones which are lagging behind. As not even the recommendations of the first audit have been implemented, the Russians told the evaluation team that they consider that the sub-project does not yet have any achievements to show. This frustration by the Russians can partly explain their reluctance to get involved in other audits until some practical results can be shown. It is, therefore, necessary for both the U.S. and the Russian counterparts to significantly accelerate these activities, not only in the audit phase, but also in their implementation.

iv. The EPA concentrates on LC/NC measures, while the Russians are aware that even if these solutions will improve the situation, they can be considered only as a first step and would like also to know how to proceed further, so as to meet the quality standards set by Russian regulations. These standards, which are practically never met, are stricter than American standards and the goal of meeting them is considered unrealistic by the American experts. However, there is a low probability of this point of view being accepted by the Russian counterparts, if the solutions of achieving a more advanced treatment are not investigated and their economic costs are not

estimated. It is, therefore, recommended to also investigate more advanced solutions than the LC/NC measures. A first step in this direction would be to assess the design of the drinking water treatment plant, prepared by the Russians, and to make the appropriate recommendations for its improvement.

v. The organization of the audits, including the Russians experts in the data collection stage and not in the formulation of recommendations, has had two adverse effects:

- it has enforced the suspicion by some of the Russians, used to keeping much of the data classified, especially in Nizhnii Tagil, which was, until recently, a closed city. These Russians, therefore, misinterpret the U.S. activities as simply requesting highly sensitive data without understanding why many of these data are required;
- it has lengthened the process of implementing the recommendations, as these are first formulated by the U.S. contractors and thereafter analyzed and accepted or rejected by the Russian counterparts. As the Americans have not presented cost estimates, this procedure also requires that the Russians make the cost estimates on their own.

If the climate of cooperation is to be significantly improved, it is strongly recommended that the entire process be carried out more collaboratively by the U.S. and Russian experts who should jointly formulate the recommendations, including the cost estimates, and submit these joint recommendations to the approving authorities. In this case, the recommendations would not be viewed as being presented by the Americans to the Russians, but as being presented by the experts (Americans and Russians) to the decision makers.

vi. It would, therefore, be advisable to reconsider the issue of training Russian experts (from national consulting firms, as local ones often do not exist) for the provision of environmental consulting services so that the recommendations submitted to the decision makers are the results of a joint team of U.S. and Russian experts.

vii. The workplan for the future provides for four additional industrial audits. It would be advisable to diversify these audits as much as possible, in order to develop a methodology to cover various pollution problems. These should in any case cover the audits for air pollution, which is considered by the Russians as being the first priority for Nizhnii Tagil. A special consideration might be given to the environmental problems raised by the old pits of strip mining and their use as dumps for waste deposits. The great number of open pits in the area would indicate that this is not an isolated problem. As the investigations and the solutions are radically different than the ones for industrial plants, it might be advisable to include one of these pits in the audit program, so as to make the Russian experts aware of the specifics of this type of audits. The problem of the open pits and their use as waste deposits may not now be the major cause of pollution in the Nizhnii Tagil area. However, the problem is considered as extremely important by the local environmental NGOs in the foreseeable future. It might also make sense to carry out such an audit to indicate that the investigations are conducted not only at the sites requested by the local authorities, but also by the NGOs both for present environmental issues and to prevent future problems.

viii. The replicability and sustainability of the sub-project is strongly dependent on the

existence of firms which have been trained and which could be able to replicate the activities for other industrial plants. As such firms do not often exist, it would be commendable to concentrate the institution building effort on training the staff of one or more existing institutes or enterprises, many of which have been privatized, in this type of activity. Since the replicability issue is not limited to Nizhnii Tagil, it would be advisable to identify a national institute or enterprise which would be in a better position to cover other areas of Russia. The problem is similar in the Moscow Drinking Water sub-project, and it would be advisable for both sub-projects to cooperate and concentrate their institution building efforts by associating the same institute or enterprises to both sub-projects.

ix. The monitoring effort should be finalized by an investigation of the informational system, indicating where the various data should be stored and how it should be processed and disseminated. This system is required to ensure that these data are accessible to the NGOs and other private sector organizations. The informational system should be computerized to facilitate the exchange of information between the various databases which, at present, are kept on hardcopies. The investigation and training provided by the Ural Polytechnic Institute should focus on the institutions identified as being in charge of maintaining parts of this database.

x. The activities related to involvement of local communities, environmental education and establishing an informational center have progressed much better than the ones related to environmental quality improvement. This is mainly due to the dedication and the competence with which ISC, the contractor for this part, has handled these activities in such a difficult environment.

xi. While the project has made significant progress in the involvement of local communities in environmental issues, the NGOs created are still frail. Taking into account the impending vestiges of the past, the activities of the NGOs would probably not be taken very seriously by the local authorities if these NGOs had not been supported by the project. These NGOs are committed to their tasks, but have insufficient knowledge about how an NGO works and how they can broaden their base and involve more people in their activities. It is necessary to continue support to the NGOs in order to ensure their survival after the end of the project. This could be achieved by training on managerial issues such as fund raising and awareness creation, among others. It is also recommended to support the NGO in setting up links with U.S. and other NGOs, especially with those involved in international environmental activities.

xi. Visits by environmental teachers and by trainers from the Pedagogical Institute to the U.S. (possibly to Chattanooga with which Nizhnii Tagil is linked) would be advisable, to enable them to get a better understanding of the U.S. educational system related to environmental concerns. Such visits to the U.S. are included in the workplan for the Moscow Drinking Water sub-project, but not for Nizhnii Tagil.

x. Additional training in management would be required for the staff of CETI to familiarize it with the procedures of fund raising, business development and generating the interest of potential sponsors. This type of training is essential to the sustainability of the center after the sub-project is completed.

xi. A managerial analysis defining the current and future fields of activity of CETI and of

the Polytechnic institute and the means to transfer know-how from the Institute to the CETI should help define the areas of activity of the two units and the ways for cooperating.

xii. Additional funding is required for the library of CETI to enable access to the documentation required for preparing future training courses and for disseminating environmental information. This is essential for making the experts of the Ural area aware of the progress outside Russia.

STATUS OF ACTIVITIES FOR THE
NIZHNII TAGIL ENVIRONMENT SUB-PROJECT

A. Improvements in environmental quality

Activity 1. Pollution prevention in Nizhnii Tagil Medical Instrument Plant			
Task	End	Output	Status
Complete negotiations on pollution prevention activities.	Apr. 95	Report	Completed
Visit of technical specialists to Nizhnii Tagil enterprises	May 95	Report	On-going
Purchase, deliver and install pollution prevention equipment	Aug 95	Report	On-going

Activity 2. Drinking water audit in Nizhnii Tagil			
Task	End	Output	Status
Audit of drinking water system, including reservoir treatment plants and distribution systems	Nov. 94	Report	On-going
Discussions with Nizhnii Tagil city officials on audit report	Feb. 95	Report	Completed
Supplementary audit of the Nizhnii Tagil drinking water supply system	May 95	Report	On-going
Follow up audit with low cost/no cost measures.	Sep. 95	Report	On-going

Activity 3. Screening mission to identify additional candidate enterprises for environmental audits.			
Task	End	Output	Status
Mission by industrial technical specialists to Nizhnii Tagil	May 95	Report	Future

Activity 4. Training in environmental auditing and pollution prevention			
Task	End	Output	Status
Training program for environmental audits and pollution prevention, including a one-week course in pollution prevention	Feb. 95	Report	On-going
Training program on methods of economic analysis of pollution prevention projects, revenue-raising for environmental investments and developing loan application packages.	Jun. 95	Report	On-going
Training seminars on audits and pollution prevention approaches in US	Sep. 95	Trained personnel	Future
Training in the US of two teams of Russians	Dec. 95	Trained experts	Future

Activity 5. White Paper on Nizhnii Tagil municipal services			
Task	End	Output	Status
Commission and complete a report on the provision of municipal environmental services	Mar. 95	Report	On-going

Activity 6. Four additional environment audits of Nizhnii Tagil industrial enterprises			
Task	End	Output	Status
Conduct four additional industrial audits	Aug. 95	Report	Future
Technical assistance to develop a loan package for each environmental audit, with technical and economic analysis as needed	Jun. 95	Report	Future
Evaluation of the results of the demonstration program	Dec. 95	Report	Future
Dissemination of results through CETI	Dec. 95	Report	Future

Activity 7. Identify opportunities and negotiate agreement with for the purchase and installation of one low cost innovative environmental technology			
Task	End	Output	Status
Identification of opportunities and negotiation of agreement	Dec. 95	Agreement	Future
Planning and design of technology demonstration	Sep. 95	Report	Future

B. Environmental Institution Strengthening

Activity 8. Improvement of Nizhnii Tagil's capacity for environmental monitoring and laboratory analysis			
Task	End	Output	Status
Review the capacity of government laboratories and existing availability of data	Jun. 95	Report	Completed
Identify priority improvements	Jun. 95	Report	On-going
Training in QA/QC procedures and monitoring design and data analysis	Sep. 95	Trained personnel	On-going
Provide up-to-date technical information	Sep. 95	Report	On-going
Plan for upgrading monitoring and laboratory capabilities	Dec. 95	Report	Future
Assistance in identifying potential sources of funding	Jun. 95	Report	Future
Design and implementation of a monitoring project	Sep. 95	Monitoring system	On-going

Activity 9. Environmental health assessment to introduce a risk-based management approach			
Task	End	Output	Status
Report for the identification of institutional roles	Jun. 95	Report	Contract awarded
Training on risk assessment, environmental epidemiology, models for exposure assessment and	Dec. 95	Trained specialists	Future
Provide publications and databases	Dec. 95	Publications	On-going

Activity 10. Upgrade norm setting, permitting and enforcement			
Task	End	Output	Status
Review existing Russian and U.S. permit information and present a permit training course	Jun. 95	Report	On-going
Assess the needs for upgrading the permitting and enforcement process	Jun. 95	Report	Delayed 6 months
Provide assistance to improve inspection and monitoring capabilities for compliance and enforcement	Jun. 95	Workshop	Delayed 6 months
Organize the presentation of existing inspection training courses in the U.S. and in Russia	Jun.95	Workshop	Delayed 6 months
Train a group of Russians in the U.S. as multi-media inspectors	Sep. 95	Trained specialists	Delayed 6 months
Demonstrate the utilization of compliance schedules	Dec. 95	Report	Delayed 6 months

Activity 11. Increase financing for environmental protection			
Task	End	Output	Status
General training in revenue raising	Jun. 95	Trained experts	Delayed 6 months
Assist city to select an environmental agency to evaluate funding needs and recommend an approach for meeting revenue needs	Sep.95	Report	Delayed 6 months
Develop a background paper on current institutional roles	Jun. 95	Report	Delayed 6 months
Training to municipal service providers	Jun. 95	Trained experts	Delayed 6 months
Assist the municipality in assessing user fees for municipal and environmental services	Dec. 95	Report	Delayed 12 months
Provide consulting assistance to enterprises in evaluating the costs and economic returns of low cost projects identified during the audits	Sep. 95	Report	Delayed 12 months
Workshop on developing loan packages for international lending organizations	Dec. 95	Workshop	Delayed 12 months
Provide technical assistance to develop all aspects of a loan package including technical, risk and economic analysis	Dec. 95	Report	Delayed 12 months
Develop a paper identifying important unsettled environmental issues deterring business investment in Nizhnii Tagil	Dec. 95	Report	Delayed 12 months
Workshop on environmental investment issues	Dec. 95	Workshop	Delayed 12 months
Identify mechanisms of linking US and Nizhnii Tagil enterprises	Dec. 95	Report	Delayed 12 months
Outreach materials for dissemination to additional communities in Russia	Dec. 95	Report	Delayed 12 months

Activity 12. Environmental law assistance			
Task	End	Output	Status
Deliver a course of lectures and training materials on U.S. environmental law and regulations	Jan. 95	Training materials	Completed
Work with local and regional officials to understand current Federal environmental law	Jun. 95	Trained staff	On-going
Set up a task force at the oblast level to develop environmental legislation	Jun. 95	Task Force	On-going
Recommendations for an oblast level environmental law in Sverdlovsk oblast	Dec. 95	Report	Future
Gather information on environmental emergency zone legislation	Dec. 95	Report	Future
Assist in setting up a program to implement environmental emergency zone legislation	Dec. 95	Report	Future

C. Community based environmental planning and priority setting

Activity 13. Working with citizen representatives and with the Nizhnii Tagil city administration			
Task	End	Output	Status
Study tour in the U.S. (Chattanooga, TN and Montpelier, VT)	Mar. 95	Trained personnel	Completed
Complete the collection of air pollution data from Nizhnii Tagil	Mar. 95	Report	Completed
Review and analyze air pollution data	May 95	Report	On-going
Supplementary audits and investigations to support air pollution analysis	Aug. 95	Report	Future
Risk analysis and assessment	Oct. 95	Report	Future
Development of risk-reduction strategies	Feb. 96	Report	Future

Activity 14. Strengthening local environmental NGOs in Nizhnii Tagil			
Task	End	Output	Status
Fund the grant awarded to the Ochishchenie environmental club	Sep. 95	Grant	To be continued till end of project
Train NGO staff on E-mail and other communications equipment, environmental strategy and planning and organizational and financial management	Jun. 95	Trained staff	Future

Activity 15. Environmental curriculum development			
Task	End	Output	Status
Presentation of curriculum guide to secondary school teachers	Jan. 95	Report	Completed
Workshop on methodologies in support of curriculum development and training	Mar. 95	Workshop	Completed
Workshop highlighting the experiences of teachers	May 95	Workshop	Future
Evaluation of first stage of curriculum development process and study tour of teachers in the U.S.	Oct. 95	Report	Future

E. Center for Environmental Information and Training

Activity 16. Providing initial information resources for CETI			
Task	End	Output	Status
Equip CETI with a reference mini-library on environmental matters	Feb. 95	Library	On-going
Connect CETI with existing databases for ready and convenient access to environmental information	Jun. 95	Databases	On-going

Activity 17. Six environmental management training courses			
Task	End	Output	Status
Training course on environmental enforcement	Jan. 95	Trained experts	Completed
Training course on environmental policy	Mar. 95	Trained experts	Completed
Training course on risk assessment	Jun. 95	Trained experts	Completed
Training course on environmental enforcement (final delivery)	May 95	Trained experts	Completed
Training course on environmental economics (first delivery)	Jun. 95	Trained experts	Future
Training course on environmental policy (final delivery)	Oct. 95	Trained experts	Future

Activity 18. Development of CETI's capability to disseminate the results of the Nizhnii Tagil activities			
Task	End	Output	Status
Project dissemination plan	Jun. 95	Report	
Train CETI staff in institutional development and outreach	Sep. 95	Trained staff	
Incorporate CETI programs in the oblast level education program	Sep. 95	Reports	On-going

ANNEX B

Evaluation Criteria

Annex B

Evaluation Criteria

The main criteria utilized in this appraisal are linked to the criteria identified in the Project Memorandum for the Environmental Policy and Technology Project for the New Independent States (Project # 110-0003). These criteria have been adapted to the specifics of the current project conditions.

1. Contribution to Economic and Democratic Restructuring. The evaluation will investigate:

- the contribution of the project towards fostering a sound environmental policy, strengthening government environmental institutions and developing environmental laws and regulations;
- the extent to which the project's objectives and activities are accepted by the national and local government entities as well as by local communities through the involvement of regional and communal agencies, local NGOs and various population groups;
- the extent in which the various groups and institutions are involved in awareness creation activities, in decision making processes and in the implementation of the project.

2. Solution of Severe Environmental Problems.

The components of the project have been selected so as to cover some of the areas of Russia with severe environmental problems. The evaluation will investigate the extent to which the project helps to reduce the magnitude of these problems. A comprehensive solution to the environmental problems would probably require important investments which have r.-. yet been identified, in their totality and for which funding is not now available. As a comprehensive solution would significantly exceed the time-frame of the project, the evaluation will concentrate on the identification of the first stage of the required clean-up, which would involve the environmental implement can be reached by low investment measures such as better operation and maintenance of existing facilities and improved management.

3. Quick and Visible Response.

The evaluation will attempt to identify the measures taken for monitoring environmental impacts in order to provide a means of verifying and quantifying the effects of the steps identified under criterion #2.

4. Benefits to U.S. Private Sector.

The components of the project which are implemented by the Environmental Protection Agency (EPA) may have few elements which would benefit the U.S. private sector through viable U.S. exports, where the U.S. has a competitive advantage. However, the evaluation will analyze the extent to which some components of this type could be incorporated into the final stages of the project, concentrating mainly on monitoring equipment as well as small scale appliances, such as domestic water filters and others.

5. Replicability and Expansion of Impact.

As the components of the project have been designed as pilot projects, the requirement of sustaining and replicating the results of the project is an important concern. The evaluation will investigate the activities which would be required in order to ensure that the results of the projects will be sustained. This would concentrate on the measures which should be taken by the Russian counterpart in order to ensure this viability as well as on the technical assistance, if any, which might be necessary to make this replicability possible.

6. Sound Management Accountability.

The evaluation will investigate the extent to which the project imposes unreasonable management burdens on USAID and/or other cooperating US agencies, mainly the Environmental Protection Agency.

7. Cost-Effectiveness.

The evaluation will study the benefits of the project relative to the financial inputs and other contributions to the project.

8. Investment Target and Donor Coordination.

The project was initiated in correlation with a more comprehensive World Bank program, including both technical assistance and investment funding. This link was subsequently dropped, mainly due to delays in finalizing the World Bank loan, and the USAID funded project was finally designed as an independent entity. However, since the negotiations regarding the World Bank loan now seem to have progressed and the loan agreement will probably be signed in the near future, the evaluation will investigate the possibility of reviving these links as well as the coordination with other donors which since the inception of the project have become active.

9. Geographic Considerations.

The geographic criteria have been incorporated in the selection of the components of the evaluated project and there is practically no scope in changing this selection at this stage of the project. However, the evaluation will review the modalities of using these criteria in the selection of the areas which should be considered as a priority for the replication of the results of the project.

10. USG Coordination and Collaboration.

The evaluation will assess the coordination among the agencies involved in the implementation of the project and the coordination between the evaluated project and other projects financed by the USG.

MSI RUSSIAN ENVIRONMENTAL PROJECT EVALUATION WORKPLAN

DRAFTED: MAY 18, 1995

Task No.	Task	Date	Responsible Party
I	WASHINGTON		
		MAY	
I.1	INFORMATION GATHERING		
I.1.1	MSI Briefing	15	MSI
I.1.2	ISC Briefing	15	Team
I.1.3	EPA and U.S. AID Briefings	16	Team
I.1.4	Team Planning Meeting	17	MSI/Team
I.1.5	Workplan Development and Refinement	18-19	MSI/Team
I.1.6	Background Document Gathering	15-19	MSI/Team
I.1.7	Travel and schedule planning and Refining	15-19	MSI/Team
II	MOSCOW		
II.1.	INFORMATION GATHERING		
II.1.1	U.S. Mission	21-26	Team
II.1.2	Russian Environmental Ministry	"	Team
II.1.3	EPA Air Quality Staff	"	Team
II.1.4	U.S. AID	"	Team
II.1.5	World Bank	"	Team
II.1.6	Implementing Organizations and other Institutes	"	Team
II.2	SITE VISITS		
II.2.1	Watershed Protection Site		
II.3	REPORT FORMULATION		
II.3.1	Site Visit Debriefing	Daily	Team
II.3.2	Draft of Findings	26	Team
II.3.3	Conclusions/First Draft Moscow Component	26	Team

III	VOLGOGRAD		
III.1	INFORMATION GATHERING		
III.1.1	Chairperson, Environmental Ministry Representative	29	Team
III.1.2	Env. Ministry Enterprise Representative	29	Team
III.1.3	Institutional Strengthening Orgs.	29	Team
III.2	SITE VISITS		
III.2.1	Environmental Info. and Training Center	29	Team
III.3	REPORT FORMULATION		
III.3.1	Site Visit/Debriefing	29	Team
III.3.2	Draft of Findings	29-30	Team
III.3.3	Conclusions/First Draft Volgograd Component	29-30	Team
IV	EKATERINBURG/NIZHNII TAGIL		
	MAY/JUNE		
IV.1	INFORMATION GATHERING		
IV.1.1	ISC	31-03	Team
IV.2	SITE VISITS		
IV.2.1	Environmental Training Center and other Project Sites	31-03	Team
IV.3	REPORT FORMULATION		
IV.3.1	Site Visit/Debriefing	31-03	Team
IV.3.2	Draft of Findings	31-03	Team
IV.3.3	Conclusions/First Draft Nizhnii Tagil Component	31-03	Team
V	DEBRIEFING ACTIVITIES		
	JUNE		
V.1	MOSCOW		
V.1.1	Draft Report	05-08	Team
V.1.2	Draft Report to AID	08	Team
V.1.2	Briefing USAID	09	Team
	Departure	10	Team
V.2	WASHINGTON		
V.2.1	Draft Reports to AID and EPA	12	Team
V.2.2	Briefing - AID and EPA	14	Team
V.2.3	Written Comments received at MSI	19	EPA/AID (Wash. and Moscow)
V.2.4	Final Report	July-05	Team/MSI

ANNEX C

Evaluation Scope of Work

Annex C

Evaluation Scope of Work

I. Objective

This evaluation is the second in a series of mid-term evaluations being conducted by USAID/Moscow in the environment sector. The purpose of these evaluations is to determine the overall effectiveness of USAID's environmental program.

This evaluation of EPA's activities in Russia will examine the effectiveness of EPA's project management systems and their implementation of project activities. It will focus specifically on the three major regional projects which EPA is currently implementing and that constitute the bulk of resources USAID is providing to EPA. Additional projects managed by EPA have already been fully funded by USAID, are fully funded and therefore are not included in the scope of this evaluation.

Given the possibility of broader USAID/Moscow budget cuts, USAID/Moscow wants to reassess the effectiveness of EPA's assistance and the appropriateness of EPA's management structure prior to approving FY 95 resources. USAID conducted a similar midterm review of the Institute for Soviet-American Relations (ISAR) program prior to awarding them additional resources to them.

II. Background

USAID provided initial funding for EPA-managed activities in Russia through an Intergovernmental Agency Agreement (IAA) and a PASA, both of which were signed on April 22, 1993. These agreements provided funding for Russia as well as West NIS and CAR countries. The initial 1993 IAA also outlined what life of project funding would be for each project in each country.

Because the IAA was multi-country, Russia received only a portion of the total \$4.15 million transferred to EPA in the April, 1993 IAA and PASA.

A follow on IAA was signed by USAID and EPA on September 29, 1994 transferring an additional \$7.625 million to EPA. Once again, resources were provided to finance activities in Russia as well as West NIS countries. (No further EPA funding was requested by USAID/CAR and the PASA was eliminated, by mutual agreement of EPA and USAID, as unnecessary.)

In Russia EPA spent \$3.063 million of FY 93 funds, in FY 94 \$5.435 million has been provided to fund EPA Russia programs. Resources anticipated to be transferred to EPA directly in FY 95 total \$3.4 million.

In Russia, three major projects are currently being implemented through EPA with USAID funding. These projects are located in the industrial cities of Nizhnii Tagil and Volgograd and a third project, the Moscow Water Project, is located in the Istra District outside of Moscow focusing on agricultural related sources of pollution and on industrial sources of pollution in the cities of Tver,

Gagarin and Dmitrov. All of these projects are designed to improve local capacity to address and mitigate environmental health risks.

The primary purpose of these projects is to reduce air and water pollution and thus contribute to a reduction in environmentally related risks to human health. A secondary purpose is to promote greater public awareness and involvement in setting environmental priorities and implementation of solutions to environmental problems at the local level. Related to USAID's development of impact indicators and targets, these projects relate to two indicators: reduction in air and water pollution, under the Quality of Life strategic objective; and strengthening government institutions to carry out environmental management responsibilities under the Economic Restructuring strategic objective.

a. Role of EPA/OIA and EPA Technical Offices in Project Design and Implementation

EPA's Office of International Activities (OIA) is responsible for the overall design, implementation and programmatic and financial management the EPA program financed by USAID in Russia. Some specific responsibilities of EPA/OIA relative to this program are: reporting to USAID/Moscow and USAID/W, ensuring that workplans are written according to guidance provided by USAID/Moscow and that workplans are ultimately approved by USAID/Moscow, ensuring travel clearance is obtained for all contractors and EPA employees, development and approval of impacts, recruitment and placement of on-site project managers, as appropriate, and for financial management of the overall program.

EPA/OIA has delegated, at the project level, design and management responsibilities to other EPA technical offices. For example, the Moscow drinking water project is managed by EPA's Regions 5 and 7, with coordination through the Office of Water; Nizhnii Tagil is managed by OIA with assistance from ORD and Office of Enforcement and Compliance. These technical offices report to EPA/OIA which then reports to USAID/Moscow.

b. Role of USAID/W

USAID/W, through the ENI/EEUD/ENR office, provides technical advice to USAID/Moscow on EPA's program in Russia. Generally, ENI/EEUD/ENR reviews all EPA workplans and provides comments to USAID/Moscow; reviews and clears all travel clearance cables; reviews EPA/OIA budgets, accruals, expenditures and financial reports; and processes the IAA and other implementing documents, such as this evaluation SOW, on behalf of USAID/Moscow.

c. Role of USAID/Moscow

USAID/Moscow provides primary oversight of all USG funded activities in Russia. In USAID/Moscow, the design, implementation, management and evaluation of all environmental projects is the responsibility of the Office of Environment (ENV). This Office directly manages projects implemented by USAID and monitors environmental projects implemented by EPA that are USAID-funded.

In the capacity, the Office of Environment is responsible, among other things, for approval of all EPA contractor and direct hire staff travel, approval of EPA workplans, ensuring coordination

among environmental contractors and other donors, review of budgets, clearance of all USAID documents obligating funds to EPA, and evaluation of the effectiveness of EPA projects funded by USAID.

d. Role of Counterparts

Russian counterparts are integral to each of these projects. It is primarily through their collective efforts that the projects achieve results and that they are replicated in other parts of Russia. Their involvement in every stage of the design and implementation process is therefore critical.

III. Scope of Work

The contractor will be expected to complete the following tasks:

a. Develop Evaluation Criteria and Approach

With regard to development of the evaluation criteria, the contractor will examine the following broad project concerns:

1. Relevance. Are the development constraints which the projects were initially designed to address still major problems that are germane to the current development strategies supported by USAID?
2. Effectiveness. Are the projects achieving satisfactory progress toward stated objectives?
3. Efficiency. Are the effects of the projects being produced at an acceptable cost?
4. Impact. What positive and negative effects are resulting from the projects?
5. Sustainability. Are the effects of the projects likely to become sustainable development impacts after USAID funding has ceased?

In order to provide some additional guidance to the contractor, in practice USAID looks at two levels of analysis for determining effectiveness. For monitoring purposes, USAID generally compares planned versus actual outputs, noting any instances where there were delays in producing the outputs and an explanation of why the delays occurred. This information is used by USAID to determine whether projects are on track, to identify the cause of delays and to allow USAID and the implementor to take corrective action. This first level of analysis assumes that the fundamental project design is sound.

In a more substantive analysis of program effectiveness, USAID examines projects to ensure that the project design itself is appropriate to achieve the anticipated impacts. At this second level of analysis, recommendations may be made to either alter the project design and implementation in order to ensure achievement of the originally intended impacts or to modify the anticipated impacts to more accurately reflect what the project, based on practice, will actually produce.

The contractor should not accept the above levels of evaluation as complete or exclusive. The contractor will be expected to develop his/her own criteria for evaluating the effectiveness of EPA's programs and develop the proposed approach with both ENI/EEUD/ENR and EPA staff prior to departure for Russia to conduct site visits.

b. Project Description and Evaluation

For each of the three projects being evaluated the contractor will:

1. Describe the activities completed, those underway, and planned activities through the life of project.
2. Describe and assess how the activities were designed and assess the adequacy of the design and accompanying budget to accomplish the anticipated impacts.
3. Compare the activities completed, underway and planned with the stated purpose, budget levels, expenditures to date and expected impacts of each project. Document EPA's contribution to date toward the overall USAID/Moscow environment targets.
4. Determine if the activities planned will yield the expected impacts within the planned LOP and budget.
5. Determine whether mechanisms are in place to measure impact, i.e., whether baseline information has been gathered or is being gathered.
6. Since all of these projects are 'demonstration projects', determine what the prospects are for replicating these projects in other regions of Russia and whether adequate steps are currently being put in to place to achieve replication

c. Project Management

A number of concerns have been raised by USAID relating to EPA's management of these projects. In general terms, USAID's concerns relate to delays in signing grant and contract agreements which have delayed project implementation, the cumbersome EPA contract process, the difficulty EPA has experienced in providing USAID with accurate expenditure reports, difficulties in providing USAID with adequate workplans, difficulty in identifying project impacts and EPA's difficulty in ensuring that adequate and competent staff are assigned by EPA/OIA to ensure appropriate project management.

From EPA's perspective, project management - issues relate fundamentally to changing objectives and guidance from USAID in Washington and Moscow which have hampered their ability to complete the design of projects and get on with implementation, the awkwardness of EPA trying to direct USAID funded contractors to support implementation of EPA's programs, internal EPA procedures and organizational structures which hamper EPA/OIAs ability to report on expenditures, accruals and accurately track their budget as well as their ability to award contracts and grants on a

timely basis, and finally communication problems that have arisen between EPA's technical offices and EPA/OIA and between EPA and USAID.

This is not, by any means, an exclusive list of concerns.

In regard to these concerns, the contractor will:

1. Describe and assess the current roles and responsibilities of EPA/OIA, USAID/Washington and USAID/Moscow environment offices
2. Assess whether there are a sufficient number of OIA staff to manage its USAID-funded program and how, if at all, this has affected implementation of EPA projects in Russia
3. Describe and assess the evolution of the project planning and design process
4. Describe and assess EPA/OIA procedures, including the process currently in place which allows EPA to direct USAID contractors to provide assistance in implementation of EPA projects.
5. Describe and assess the EPA/OIA budget tracking system
6. Describe and assess the current division of roles and responsibilities between EPA/OIA and the EPA technical offices which implement EPA/OIA projects in Russia
- d. Recommendations

The contractor 18 report will summarize recommended changes in project design, implementation and management 80 as to expedite implementation, improve relations between EPA and USAID/Moscow and ultimately ensure that project impacts will result.

Recommendations related to project design and implementation shall:

1. Summarize what projects are working well and why
2. Identify and explain reasons for any project problem areas
3. Where implementation and design issues have been identified
 - a. Propose changes to project design and implementation that will improve the performance of EPA-managed projects
 - b. Identify improvements to EPA procedures which will improve EPA/OIA performance
 - c. Propose changes to USAID's management and oversight that will improve the project design and implementation of EPA projects

4. Assess the extent to which projects will achieve their intended impacts within the life of project and associated budget; recommend revisions to targets as appropriate
5. Assess the extent to which the projects will be replicated and if this is in question, provide recommendations to ensure that this occurs
6. In the event that there are project implementation problems that appear intractable or projects that do not appear to be able to achieve their intended impacts within the life of project and its associated budget, regardless of any changes that might be made to improve management and implementation, assess whether USAID/Moscow should continue to fund these projects and if so, why.

Recommendations related to program management should include:

1. Changes in EPA/OIA and technical offices roles and responsibilities, including, if appropriate, alternate ways EPA could/should explore to recruit staff to provide adequate on-site management of its projects
2. Changes which would improve and expedite the flow of project level information and communication between EPA/OIA and its technical offices and between EPA/OIA and USAID/Moscow
3. Changes that will improve EPA's ability to contract, budget and report on project progress and expenditures to USAID
4. Changes that will improve the flow of communication between USAID/Moscow and EPA/OIA related to broader program management concerns
5. Changes that will clarify EPA's authority to direct USAID contractors

IV. Methods and Procedures

The principal points of contact in Washington will be Alexandria L. Panehal, ENI/EEUD/ENR, project officer and Lee Paserew, Director, EPA/OIA. When the team is in Russia, the principal USAID/Moscow contact is Dr. Kevin Rushing, Office of Environment and Health. USAID/Moscow's Office of Environment and Health will assist the contractor team with making appointments with Russian counterparts while the team is in the field.

The contractor will certify that there is no conflict of interest with respect to the performance of this evaluation on the part of the contractor and each team member.

The contractor will guarantee that substitutions cannot be made for individuals selected as team members without the approval of ENI/EEUD/ENR. If substitutions have to be made and if ENI/EEUD/ENR does not concur in the substitutions, the evaluation will be canceled or postponed at ENI/EEUD/ENR's option.

The contractor will guarantee that approved team members will be available for the period of availability specified below in "Schedule"

a. Washington

- 1) Interview Washington USAID ENI/EEUD/ENR staff to:
 - @ obtain copies of background documentation-project descriptions, budgets, expenditures
 - @receive background briefing on EPA/USAID program management issues
- 2) Interview Washington EPA/OIA and EPA project manager staff (by phone for out of area EPA project managers) to:
 - @obtain copies of background documentation and briefing on EPA perspective on program effectiveness
 - @ obtain names and phone numbers of key EPA Russian counterparts for each project
- 3) Interview Washington USAID ENI/PCS/PAC staff for background on ENI broader strategic framework

b. Field

- 1) Interview USAID/Moscow staff to:
 - @obtain copies of relevant documentation
 - @receive briefing on EPA/USAID program management issues
 - @receive additional names of key Russian counterparts
 - @clarify information received from Washington interviews
 - @finalize schedule for site visits and counterpart interviews upon completion of site visits, review draft report with USAID/Moscow and finalize schedule for production and distribution of final report
- 2) Interview key Russian counterparts to:
 - @gain their perspective on the effectiveness of EPA managed projects
 - @ observe first hand, through site visits, progress on implementation of EPA managed projects

Schedule

May 15-18	Interview USAID/Washington and EPA staff
May 19	Depart Washington/Moscow
May 22	Brief/Interview AID/Moscow staff
May 22-26	Travel to Moscow Water site
May 27-30	Travel to Volgograd
May 31-June 3	Travel to Nizhnii Tagil
June 5-8	Return to Moscow, draft initial report
June 9	Oral debrief of draft report to USAID/Moscow

June 10	Return to U.S.
June 12	Contractor provides USAID/Washington and EPA with copy of draft outline
June 19	AID/Washington, USAID/Moscow and EPA provide contractor with detailed comments on draft outline
July 3	Contractor incorporates comments of reviewers, clarifies with USAID/Moscow any conflicting comments and produces draft report
July 17	USAID and EPA provide contractor with comments on draft report
July 28	Final report sent by contractor and reviewed by EPA and USAID staff, and finalized
July 31	Contractor provides USAID/W and EPA with oral presentation of evaluation, reports key findings
July 31-Aug. 21	Report translation (does not include annexes)
Aug. 25	Translation of report sent to USAID/Moscow

Reporting Requirements and Deliverables

Prior to departure from Washington for the field, the contractor shall submit for concurrence to ENI/EEUD/ENR an outline detailing criteria proposed to evaluate EPA's programs, including how the evaluation tasks will be fulfilled and by whom.

Prior to departure from the field, the contractor will provide USAID/Moscow with a draft written outline of the principal findings and conclusions and will provide an oral briefing for USAID/Moscow of the contents of this report.

Immediately after return from the field, the contractor will provide ENI/EEUD/ENR and EPA/OIA staff with a verbal summary of findings and conclusions and a draft written outline of the same.

USAID and EPA will have five work days to provide the contractor with written comments on the contractor's draft report. Contractor will have 10 work days to present the final draft report. USAID will have 10 work days to review the final draft report and provide the contractor with comments. Contractor will have 10 work days to present the final draft report. USAID will have 10 work days to review the final draft report and provide the contractor with comments. Contractor will have 10 work days to complete the final report. Subsequent to ENI/EEUD/ENR and USAID/Moscow concurrence in the final report, an ENI bureau review meeting will be scheduled within two weeks after receipt of the final report.

USAID's required format for evaluation reports is as follows: Table of Contents, Executive Summary, Body of Report, Appendixes. Compliance with the Scope of Work is mandatory for final payment to the contractor.

Contractor will produce 10 copies (including one loose leaf) of the draft final evaluation report. Contractor will provide USAID/Moscow with three copies, ENI/EEUD/ENR with two copies and the remainder of the copies will be provided to Lee Paserew of EPA/OIA. The draft final report will be no longer than 25 pages (exclusive of annexes). The draft and final report will include an executive summary not exceeding 5 pages which delineates the major findings, conclusions, lessons learned and principal recommendations from this evaluation.

Contractor will produce 50 copies (including one loose leaf) of the final evaluation report. Contractor will provide USAID/Moscow with 10 copies, ENI/EEUD/ENR with three copies, EPA/OIA with 10 copies, and the remainder of the copies are to be provided to CDIE and ENI's evaluation office. The final evaluation report will be no longer than 25 pages, exclusive of annexes and include a 5 page executive summary.

The draft and final reports will be presented in hard copy and on a diskette in Word Perfect 5.1 format.

Finally, the contractor will prepare a Project Evaluation Summary that includes action decisions approved, evaluation abstracts, purpose of project, purpose of evaluation and methodology used, findings and conclusions, and recommendations. The format will be specified by ENI/PCS/PAC. The summary will be submitted at the time of draft report submission and will be presented both in hard copy and on a diskette in Word Perfect 5.1 format which USAID can modify.

Logistical Support

All logistical support will be provided by the contractor, including travel, transportation, secretarial and office support, interpretation, report printing and communication, as appropriate.

While in the field, contractor will not have access to USAID office space, secretarial/translator support, faxes or computer equipment, any related office supplies or USAID motor pool services.

Work Week

Subsequent to advance approval from USAID, a six-day work week is authorized in the field and a five-day work week in the US.

Team Composition

Team will be composed of three senior development management specialists. Their functions, described in greater detail below, will be: one will act as team leader with experience in evaluation program management, the other two senior development management specialists will provide technical expertise in air and water quality improvement programs.

Team Leader: The team leader will have a minimum of 10 years relevant international development experience. He/she must also have professional working experience with EPA programs, either as an EPA employee or in management of EPA's programs. The Team Leader must also have relevant AID evaluation experience. The Team Leader will be responsible for the overall quality of the evaluation and production of reports in a timely fashion. The Team Leader must also possess:

demonstrated team management experience demonstrated good interpersonal skills

good organizational skills

good analytic skills

demonstrated writing skills

Senior Development Management Specialist (Air Quality): The Senior Development Management Specialist (Air Quality) must possess at least 7 years relevant experience in designing and implementing industrial air pollution reduction projects in the US and overseas. The Senior Development Management Specialist (Air Quality) will be responsible for evaluating the adequacy of the design and implementation of EPA air projects and components of broader industrial pollution projects which contain an air quality improvement component. This person will also be responsible for writing sections of the evaluation report related to air quality. This person must also possess:

demonstrated analytic skills

organizational skills

intercultural skills

demonstrated writing skills

Senior Development Specialist (Water Quality): The Senior Development Management Specialist (Water Quality) must possess at least 7 years relevant experience in designing and implementing water pollution reduction projects (from both point and non-point sources) in the US and overseas. This person will be responsible for evaluating the adequacy of the design and implementation of EPA water projects and components of broader pollution prevention projects which contain a water quality improvement component. This person must also possess:

demonstrated writing skills good organizational skills

demonstrated analytic skills intercultural skills

Project Evaluation Summary

A.I.D. EVALUATION SUMMARY - PART I

1. BEFORE FILLING OUT THIS FORM READ THE ATTACHED INSTRUCTIONS
2. USE LETTER QUALITY TYPE. NOT DOT MATRIX TYPE.

IDENTIFICATION DATA

A.Reporting A.I.D. Unit: Mission or AID/W Office ENI/EEUD _____ (Es# _____)	B. Was Evaluation Scheduled in Current FY Annual Evaluation Plan? Yes Slipped " Ad Hoc " Evaluation Plan Submission Date: FY _____ Q _____	C.Evaluation Timing InterimFinal" Ex Post" Other"
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D. Activity or Activities Evaluated (List the following information for project(s) or program(s) evaluated: if not applicable list title and date of the evaluation report.					
Project No. 110-0003	Project Program Title:EPA Portion of the Environmental Policy and Technology in Russia	First PROAG or Equivalent (FY) 1993	Most Recent PACD (Mo/Yr) September 1997	Planned LOP Cost (000) \$11.5 million (FY 93-95)	Amount Obligated to Date (000) \$11.5 million

ACTIONS

E. Action Decisions Approved by Mission or AID/W Office Director	Name of Officer Responsible for Action	Date Action to be Completed
Action(s) Required		

APPROVALS

F. Date of Mission or AID/W Office Review of Evaluation: (Month) (Day) (Year)				
G. Approvals of Evaluation Summary and Action Decisions:				
Name (Typed) Signature Date	Project/Program Officer	Representative of Borrower/Grantee	Evaluation Officer	Mission or AID/W Office Director

ABSTRACT

H. Evaluation Abstract (Do not exceed the space provided)

The Environmental Policy and Technology (EPT) Project started in FY 1993 when the U.S. was trying to help Russia emerge from its earlier political and economic system. A sector of great need has been the environment, which had been abused badly causing numerous health hazards for the Russian people. Therefore, the USG provided special funding to USAID to assist Russia urgently in this area. Because EPA had prior contacts with former Soviet environmentalists and because of the political need to start some activities quickly, EPA was given a major role to play in providing technical assistance to Russian counterparts. Thus, USAID initiated the financing of operations without the benefit of a carefully designed project, which, along with some problems in its relationship with EPA, led to eventual management difficulties as EPA project activities began. Also, while the original overall design called for policy, technology transfer, training and awareness building activities, the EPA project readily evolved into three regional sub-projects in Volgograd, Nizhnii Tagil and the Moscow region.

Despite these design and start-up problems, the EPA portion of the larger EPT project has certainly begun to show some results in numerous areas, such as developing air monitoring systems in Volgograd, setting up a training center in Ekaterinburg, assisting an NGO in Nizhnii Tagil, beginning to influence government policy, and training numerous Russians in technical and management aspects of environmental control and prevention. Problems persist, however, in other areas due to the earlier project design flaws, slow budget allocations, the lack of full collaboration with Russian counterparts, and lingering management difficulties within both USAID and EPA and between agencies. Accordingly, there are fewer tangible results of the EPA project activities than is normally expected at this mid-way point in the funding of the EPA portion of this overall project.

In addition to addressing the above mentioned concerns, USAID, EPA and the numerous contractors working on the EPA part of the EPT project should take more steps in helping to assure the sustainability of the various project components, the replicability of pilot activities, the needed institution building, and exploiting private sector opportunities. USAID, in consultation with EPA, needs to make some difficult funding decisions about individual EPA project activities which are not yet demonstrating impact, as budgets decline.

COSTS

I. EVALUATION COSTS

1. Evaluation Team		Contract Number OR TDY Person Days	Contract Cost Or TDY Cost (U.S. \$)	Source of Funds
Name	Affiliation			
Dennis M. Chandler, Team Leader and Management/Evaluation Specialist	Management Services International		\$118,541	
Dr. Andrei Filotti, Water Resources and Environmental Engineer				
Jacqueline Levister, Air Quality Expert				
2. Mission/Office Professional Staff	3. Borrower/Grantee Professional			
Person-Days (Estimate) _____	Staff Person-Days (Estimate) _____			

SUMMARY

J. Summary of Evaluation Findings, Conclusions and Recommendations (Try not to exceed the three (3) pages provided)

Address the following Items:

"	Purpose of evaluation and methodology used	"	Principal recommendations
"	Purpose of activity(ies) evaluated.	"	Lessons learned
"	Findings and conclusions (relate to questions)		

Mission or Office: USAID/Washington: ENI/EEUD	Date This Summary Prepared: July 11, 1995	Title and Date of Full Evaluation Report: Management Assessment of the EPA Portion of the Environmental Policy and Technology Project Activities in Russia July, 1995
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The Environmental Policy and Technology (EPT) Project was authorized in Fiscal Year (FY) 1993 at a time when great political and economic changes were occurring in the former Soviet Union and in parts of the former Eastern Europe. Therefore, the primary motivation of the U.S. Government (USG) was as much, if not more so, political as it was technical in offering to help Russia in addressing some of its key problems during this difficult period of tumultuous change. Certainly one of the important sectors to assist was the environment, which had been abused for many years under previous systems, with the result that Russia had some of the worst water and air pollution problems of any nation in the world, with the resulting health hazards. Within this scenario the USG appropriated special funding for the U.S. Agency for International Development (USAID) to assist Russia in selected areas. Because the U.S. Environmental Protection Agency (EPA) had prior contacts with many former Soviet environmentalists, EPA was given a leading role in the EPT project. However, due to the overriding political nature of the program and the need to act quickly for foreign policy reasons, there was not sufficient time to plan carefully the design and implementation of this overall project, including EPA's portion, which led subsequently to management problems as USAID and EPA rushed to get some activities underway.

Nevertheless, a number of worthwhile activities started, particularly in the regions, which have begun to yield results already or will do so in the foreseeable future. Using the same criteria as in the original project authorization documents, as up-dated, most notable among these positive indications include solid preparations for air monitoring systems in Volgograd; the establishment of a training institute in Ekaterinburg with the assistance of a U.S. private voluntary organization (PVO); public awareness building activities via a local non-governmental organization (NGO) in Nizhnii Tagil; central government approval of a priority environmental program and budget also in Nizhnii Tagil; legal research and the development of local prototypes in Volgograd to assist in the drafting of improved environmental laws and policies; and excellent training programs in the U.S. and in Russia, some funded under this project and others through another USAID training project.

Other project components have not proceeded as successfully, however, based on the same set of project criteria. For example, certain project activities in the Moscow water district took a long time to get underway as budgets were slowly worked out and numerous EPA experts or contractors visited Russia several times with seemingly limited tangible results. The more diagnostic approach and reportedly non-collaborative style of some activities in Nizhnii Tagil and the Moscow region frustrated Russian counterparts who felt that they were not being given enough credit for their own expertise and who were impatient with the delays in gaining specific U.S. recommendations in a useable form or access to the much sought after U.S. technology. In focusing on technical issues, the EPA regional sub-projects in the Moscow area and Nizhnii Tagil largely ignored economic factors, especially the implications of a transition toward a market economy. Commodities, though often financed from another USAID program, did not always arrive when needed, potentially impeding the attainment of project objectives in Volgograd. There has also been minimal linking of components of this EPA project internally and with other complementary activities in the USAID or other USG agencies' portfolio in Russia. Finally, limited results are evident in developing new private sector opportunities, such as environmental services, as well as potential joint ventures involving Russian enterprises and U.S. counterparts.

A serious deficiency in this project has been design flaws and the absence of clear, comprehensive management direction by both USAID and EPA. Because of the political atmosphere in which this project was hurriedly initiated, many short-cuts had to be taken by both agencies in the design and early implementation of

SUMMARY (cont'd.)

activities which are now adversely affecting the project's ability to demonstrate verifiable impact. Lengthy disputes between USAID and EPA about relative roles, procedures and workplans have taken inordinate amounts of staff time. Since the funding for this assistance project comes from the appropriations of USAID, which then obligates the funds, USAID should be and is, in fact, both legally and managerially responsible for its ultimate use. At least initially EPA seemed somewhat reluctant to accept USAID's leadership role and, therefore, its own implementing position in this technical assistance project and was not able to respond to all of the related needs of the agency paying the bills and managerially responsible. Internally, both agencies should have organized themselves better, with USAID delegating the project authorities sooner to its now well qualified field mission for better on-site management, and EPA consolidating the currently scattered project tasks in fewer offices under the overall management direction of its Office of International Activities (OIA). EPA also needs to assign a project coordinator to Moscow as early as possible this fiscal year (1995) to facilitate its communications with USAID and within its own agency. Finally, USAID needs to take the lead in coordinating the activities of this project with all other donors in order to maximize the efficient use of resources.

In sum, the evaluation team believes that the EPA portion of the overall EPT project represents a priority allocation of USAID funds, consistent with overall agency goals and objectives. There is certainly no denying the gravity of the environmental problems evident in Russia as well as the growing, genuine Russian interest in addressing many of them. The technical objectives pursued by EPA appear generally to make good sense in addressing some of the critical air and water quality problems, which threaten the health of the Russian people. However, the EPA project's effectiveness has often been reduced because these earlier design deficiencies were not quickly overcome and because the methodologies used sometimes do not fit well with the Russian situation. For example, in this latter regard, a closer collaboration between the U.S. experts and their Russian counterparts would be very helpful in the form of more integrated teams, instead of the more common pattern now used of largely dividing the tasks, some of which are carried separately out by the Americans and the others by the Russians. One can certainly detect the beginnings of some positive results in selected sub-project activities in Volgograd and Nizhnii Tagil. There are unfortunately fewer verifiable results of EPA's efforts so far in the Moscow sub-project, which started later than the others. This more limited, measurable impact affects the entire project and is partly due to design flaws, late budgetary allocations and start-ups, the more diagnostic course often taken by EPA versus the more results oriented approach preferred by USAID and the Russians, the slowness with which so many activities have proceeded, and management difficulties as USAID and EPA grappled with the implementation of this large, complex and not well structured project. Of concern is also the work and cost efficiency of the large numbers of U.S. experts who make numerous visits to sub-project sites. At this mid-way point in the funding for this project, there is little evidence of the sustainability and replicability of EPA sub-project activities nor is there a sufficient effort underway leading to this, including a clear strategy for the needed institution building. USAID, in consultation with EPA, needs to weigh this fact carefully in its future funding decisions. Finally, based on the experience to-date, both USAID and EPA should be able to solve their management problems and proceed more expeditiously with their Russian collaborators in achieving more specific targets during the second part of this project.

ATTACHMENTS

K. Attachments (List attachments with this Evaluation Summary: always attach copy of full evaluation report, even if one was submitted earlier; attach studies, surveys, etc., from "on-going" evaluation. If relevant to the evaluation report.)

COMMENTS

L. Comments By Mission. AID/W Office and Borrower/Grantee On Full Report

ANNEX D

Persons Contacted

Annex D

Persons Contacted

U.S. AND INTERNATIONAL ORGANIZATIONS:

U. S. Agency for International Development (USAID)

USAID/Moscow:

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RUSSIAN ORGANIZATIONS:

Moscow:

Ministry of Environmental Protection and Natural Resources (MEPNR)

Mr. S.V. Markin, Chief of the Air Department

Mr. Igor Izvolskii, Ministry Coordinator for the Nizhnii Tagil Sub-Project

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Mr. Khailov, Deputy Chief of the Water Department

Larisa Janchik, Head of Division on Bilateral Cooperation in the field of Environmental Protection

Moscow Regional Committee for Environmental Protection and Natural Resources

Robert F. Chizh, Chairman

Agrarian Institute

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Serguei Denissov, Senior Expert of the State Control Department

Liudmila F. Karpukhina, Head of the Economic Department

Liudmila N. Fokina, Head of the Laboratory Control Department

Boris K. Arefev, Head of Ecological Examinations Department

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Sverdlovsk Regional Committee for Protection of Nature

Ivan S. Soloboev, Committee Chair and Chair, CETI board of Directors

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Center for Environmental Training and Information (CETI)

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Dr. Alexander Yashin, Computer Assistant

Nizhnii Tagil:

Nizhnii Tagil Municipality

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Nizhnii Tagil Pedagogical Institute

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Sergey K. Puntus, Engineer and Chair of the PSC

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Vladimir I. Smirnov, Rector

Urals Polytechnic University

Aleksandr S. Semonov, Chair of the PSC Subcommittee on Environmental Technology and Policy

ANNEX E

Map of Western Russia

Annex E

Western Russia

